ASBPE Magazine of the Year 2006

FROM THE TOP
President Bush pushes four federal agencies to share health data. PAGE 7

MANAGING THE UNMANAGEABLE
Six practical tips for coping with electronic discovery requests when your company lands in court. PAGE 38

COMPUTERWORLD

THE VOICE OF IT MANAGEMENT ■ WWW.COMPUTERWORLD.COM

AUGUST 28, 2006 ■ VOL. 40 ■ NO. 35 ■ $5/COPY

Mass. Set to Mix Office With ODF

State will stick with Microsoft's apps but add plug-ins for open file format

BY ERIC LAI AND CAROL SLIWA

Massachusetts last week officially confirmed that its executive agencies for now will continue using Microsoft Office instead of switching to alternative desktop applications. But by Jan. 1, in keeping with a controversial policy announced last year, the state plans to start adding plug-in software that will let its Office users create and save files in the industry-standard OpenDocument format.

GUTIERREZ: ODF-compliant alternatives to Office aren't accessible enough.

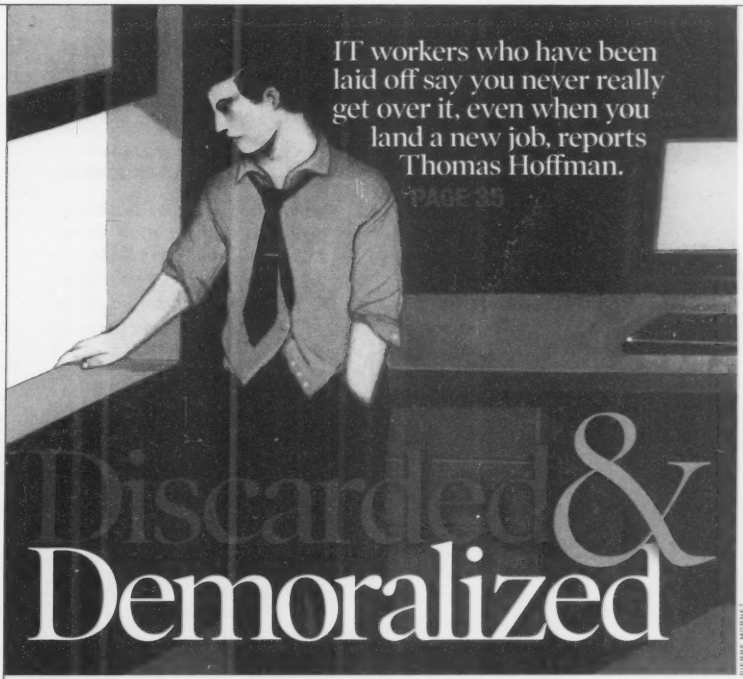
The announcement was a victory for advocates of people with disabilities, who had contended that other desktop applications now available are less compatible than Office is with screen readers and other accessibility tools used by blind, deaf and mobility-impaired end users.

For Microsoft Corp., the state's decision represents something of a mixed bag. The software vendor had viewed Massachusetts as a key battleground in its effort to maintain Office's dominance of the desktop applications market. However, although state agencies will continue to use Office, Massachusetts didn't back away from its January 2007 deadline for switching from Microsoft's file formats to OpenDocument.

In addition, the state has yet to agree to add Microsoft's Open XML technology to its list of approved open file formats, which includes OpenDocument and the Portable Document Format. Microsoft developed Open XML for its Office 2007 release, due late this year.

Massachusetts CIO Louis Gutierrez declined to comment about last week's announcement. But in an e-mail message sent two weeks ago to the state's IT advisory board, Gutierrez wrote that his office had "tried to thread a needle" by seeking an approach that would support a move toward standard document formats and encourage vendor competition yet maintain full desk-

ODF, page 45



IT workers who have been laid off say you never really get over it, even when you land a new job, reports Thomas Hoffman.

PAGE 35

Discarded & Demoralized

PIERRE MORNET

IT Execs on Firing Line Over Security Breaches

BY JAIKUMAR VIJAYAN

The cost of data breaches may be getting a lot higher for IT professionals who are deemed to be responsible for failing to secure corporate information.

For example, Maureen Govern, AOL LLC's chief technology officer, abruptly resigned last week in the aftermath of a disclosure that the company had publicly released data on searches done by about 650,000 of its online subscribers. AOL also fired two workers in its research division, which was responsible for the release of the data and had been overseen by Govern.

It was the second time this month that high-level technology managers lost their jobs because of data breaches. On Aug. 3, Ohio University sacked two top IT managers for what it saw as their failure to prevent a series of breaches discovered at the Athens-based school in the spring.

> "Somebody has to take the chop for [breaches]. The real question, though, is whether it's the right guys' heads that are rolling."
>
> DAVID HESSION, CHIEF SECURITY OFFICER, BT RADIANZ

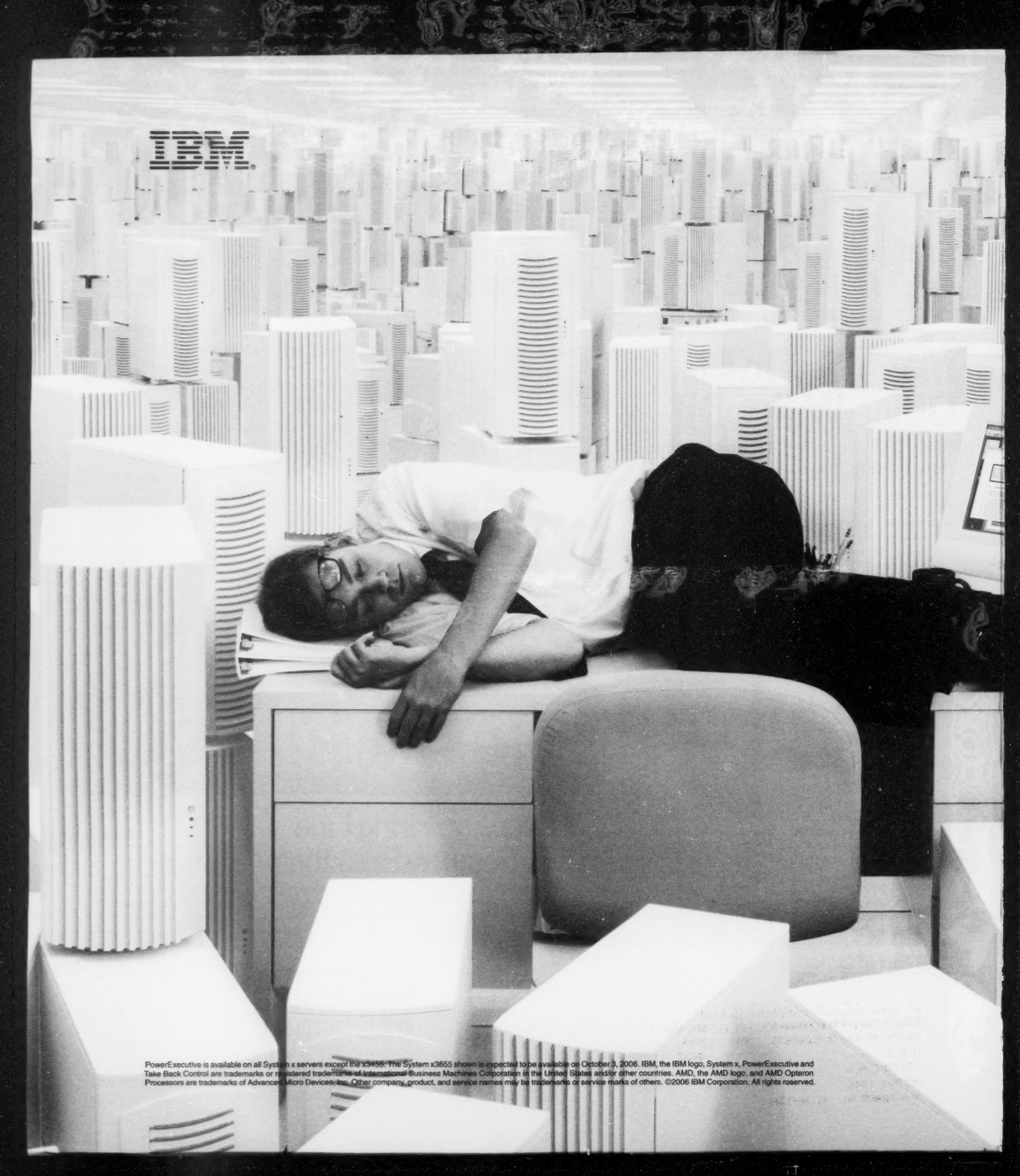
In addition, university CIO William Sams announced in July that he will resign once someone is found to replace him, saying that "a new energy level and skill set" is needed in the school's IT organization. Sams is still on the job, though, and he wrote the termination letters sent to the two fired managers.

IT managers should expect firings and other harsh dis-

Breaches, page 14

NEWSPAPER

BXBBJFT**********CAR-RT LOT**B-050
#0234945/CB/7# CW200635 001 12644
U M I P0062
PERIODICALS
PO BOX 1346 9966-4
ANN ARBOR MI 48106-1346



PowerExecutive is available on all System x servers except the x3455. The System x3655 shown is expected to be available on October 3, 2006. IBM, the IBM logo, System x, PowerExecutive and Take Back Control are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. AMD, the AMD logo, and AMD Opteron Processors are trademarks of Advanced Micro Devices, Inc. Other company, product, and service names may be trademarks or service marks of others. ©2006 IBM Corporation. All rights reserved.

AMD 64 Opteron

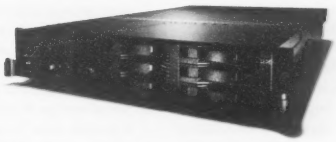
_INFRASTRUCTURE LOG

_DAY 28: These slow, inefficient boxes don't have enough power to run my high-end business apps. They can't do anything. Though I guess crashing counts as doing something.

_Need sleep. Will try to dream that I am I.T. King of a distant planet that only produces stupefyingly powerful servers.

_DAY 30: I've taken back control, thanks to the IBM System x™ server with the AMD Opteron™ Processor. It has more power and more efficiency than I ever imagined in a standards-based server. The PowerExecutive™ tool assigns power as needed for each server. It helps optimize our power consumption. Maximize performance. Increase reliability. I can finally sleep in my own bed again.

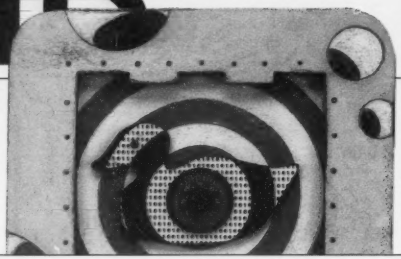
_I have taken back control. I am Ned, benevolent I.T. King of this...uh, data center.



IBM.COM/**TAKEBACKCONTROL**/X

CONTENTS

08.28.06



Building Up Database Defenses
In the Technology section: A successful database protection strategy involves identifying at-risk data before applying key defensive measures. Users reveal what works — and what doesn't. **Page 23**

Electronic Discovery: Managing the Unmanageable
In the Management section: When litigation looms, IT needs to effectively manage the size and cost of e-discovery. IT mentor and attorney Benjamin Barnett provides concrete, common-sense guidance. **Page 38**

NEWS

6 **Dell is scrambling** to help corporate users manage its recall of 4.1 million laptop batteries because of the risk of fire — and Apple has issued a similar notice.

6 **IBM unveils** a new high-end storage array and enhancements to its midrange offerings. The company also expanded its reseller agreement with Network Appliance.

7 **President Bush** has ordered four agencies that oversee federal health care programs to support interoperability standards by Jan. 1.

7 **Internet Security Systems** customers fear that its $1.3 billion sale to IBM may hurt their relationship with ISS and slow the development of its tools.

8 **Penn State** is using a service-oriented architecture to automate more than 75 business processes used by the university's 16,000 employees.

12 **Philadelphia Mayor** John Street has asked the city's board of ethics to investigate Dianah Neff's resignation as CIO to join a consulting firm that has done business with the city.

16 **Global Dispatches:** One of the co-founders of Infosys Technologies is stepping down as the offshore IT services firm's executive chairman after reaching its mandatory retirement age of 60.

18 **Q&A: Danny Sabbah,** the general manager of IBM's Rational software unit, discusses how it is updating its tools to help users comply with regulations.

TECHNOLOGY

26 **Emerging Technologies: Flash Forward.** Windows Vista will help launch a new generation of hybrid hard drives that combine flash memory cache with magnetic disk, speeding performance and reducing power consumption in laptops, desktops and servers.

30 **QuickStudy: Internet2.** A consortium of high-tech companies, universities and government agencies are hard at work on the next generation of the Internet. Find out how it will function.

31 **Security Journal: Soaking It All Up at the Black Hat Conference.** Mathias Thurman comes back from the hacker conference loaded down with information, only to find his own network in chaos.

MANAGEMENT

35 **Discarded and Demoralized.** Thousands of IT professionals have felt the shock of layoffs and outsourcing over the past six years. Although the economy has since strengthened and demand for workers is on the rise, many have struggled to put their personal and professional lives back together. And they may never feel the same about work.

37 **Managers' Forum.** Breadth or depth: Which is more important for your career? Paul Glen weighs in. He also advises a new IT liaison on how to deal with alienated customers.

OPINIONS

10 **On the Mark: Mark Hall** wonders whether business leaders are counting on miracles. They say they want to decrease IT downtime after a disaster, but many aren't increasing their disaster recovery funding, according to a recent survey.

20 **Don Tennant** says that if IT is serious about "taking care of business," it has to establish a culture of accountability.

20 **David Moschella** sees an IT personality split between those on the vendor side and those on the customer side.

21 **John D. Halamka** describes his approach to a wireless implementation that supports users with a variety of needs.

32 **Mark Willoughby** looks at what vendors are up to with unified threat management appliances.

40 **Paul M. Ingevaldson** doubts that there are many CIOs who are completely sold on the security of their IT infrastructures. But they can do several things to make a catastrophe much less likely.

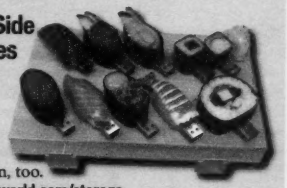
46 **Frankly Speaking: Frank Hayes** is looking for an honest hacker, after a couple of Black Hat hacks were exposed as hoaxes.

DEPARTMENTS/RESOURCES

At Deadline Briefs	6
News Briefs	8, 10
Letters	21
IT Careers	42
Company Index	44
How to Contact CW	44
Shark Tank	46

ONLINE

WWW.COMPUTERWORLD.COM



The Lighter Side Of USB Drives
STORAGE: Sure, portable flash memory is practical. But it's OK to have fun now and then, too.
www.computerworld.com/storage

Solve Real Problems With The Network Diagnostic Tool
NETWORKING: Columnist Greg Schaffer details how he put this advanced open-source tool on his laptop and used it to fix problems at client sites.
www.computerworld.com/networking

QuickStudy: Faraday Cages
SECURITY: Find out how to restrain a wild Wi-Fi signal.
www.computerworld.com/security

Keep Your Ubuntu Server Secure
LINUX: Get advice on administering user accounts, monitoring log files and more in this excerpt from *The Official Ubuntu Book.*
www.computerworld.com/security

How to Handle a Boss Who Takes Credit for Your Work
CAREERS: Lacking recognition for a job well done? Here are some tips from *CareerJournal.com* to help you tilt the spotlight back toward you.
www.computerworld.com/careers

Computerworld TechCast
AUDIO: This five-minute podcast delivers summaries of key technologies and concepts every week.
computerworld.com/blogs/techcast

ONLINE DEPARTMENTS

Breaking News	computerworld.com/news
Newsletter Subscriptions	computerworld.com/newsletters
Knowledge Centers	computerworld.com/topics
The Online Store	computerworld.com/store

Introducing the BlackBerry 7130c™

now puts big functionality in a small package.

Get the BlackBerry® functionality you need and the slim phone convenience you want with the BlackBerry 7130c, exclusively from Cingular. Say goodbye to sacrifice and get the best of both worlds. Get now.

- > Get easy access to your personal and work email accounts.
- > SureType™ technology for easy text entry.
- > Hands-free speakerphone and Bluetooth® capability.
- > Global coverage with GSM quad-band connectivity.
- > Runs on ALLOVER,™ the largest digital voice and data network in America.

BlackBerry 7130c
Only $199.99
after $50 mail-in rebate card and 2-year service agreement.

BlackBerry.

CINGULAR MAKES BUSINESS RUN BETTER

Call 1-866-4CWS-B2B Click www.cingular.com/7130c Visit a store

cingular
raising the bar

The ALLOVER network covers over 273 million people and is growing. **Coverage** not available in all areas. **Limited-time offer.** Other conditions and restrictions apply. See contract and rate plan brochure for details. Up to $36 activation fee applies. Equipment price and availability may vary by market. **Early Termination Fee:** None if cancelled in the first 30 days; thereafter $175. Some agents impose additional fees. **Rebate Card:** BlackBerry 7130c price before mail-in rebate card is $249.99. Allow 10–12 weeks for rebate card. Rebate card not available at all locations. Must be customer for 30 consecutive days. Must be postmarked by 11/30/06. **Sales tax** calculated based on price of unactivated equipment. **Unlimited Voice Services:** Unlimited voice services are provided solely for live dialog between two individuals. **Offnet Usage:** If your minutes of use (including unlimited services) on other carriers' networks ("offnet usage") during any 2 consecutive months exceed your offnet usage allowance, Cingular may at its option terminate your service, deny your continued use of other carriers' coverage, or change your plan to one imposing usage charges for offnet usage. Your offnet usage allowance is equal to the lesser of 750 minutes or 40% of the Anytime Minutes included with your plan. The BlackBerry and RIM families of related marks, images, and symbols are the exclusive properties of and trademarks or registered trademarks of Research In Motion Limited – used by permission. RIM and Research In Motion are registered in the U.S. Patent and Trademark Office and may be pending or registered in other countries. ©2006 Cingular Wireless. All rights reserved.

AT DEADLINE

Microsoft Reissues IE Security Patch

Microsoft Corp. has reissued a critical security update for its Internet Explorer browser. The company said the reissued patch "fully resolves" a serious security bug that it introduced with the original update on Aug. 8. Microsoft had acknowledged the problems with the update soon after it was issued. Though no attacks exploiting this bug have been reported, eEye Digital Security Inc. said it believes that the flaw is "critical."

U.K. Youth Admits To Crashing Server

An 18-year-old British youth has pleaded guilty to crashing his former employer's server with a flood of 5 million e-mails. David Lennon had been charged with violating the U.K.'s Computer Misuse Act, which prohibits the unauthorized modification of a computer. Lennon admitted to having "modified" the server of Domestic & General Group PLC, but he claimed that the e-mail flood was authorized, since the Web site invited comments.

Intel Re-releases Centrino Patch

Intel Corp. has re-released a critical security patch for some Centrino-based wireless systems. The flaw in the patch released early this month causes the system's Proset wireless connection software to consume much of a PC's memory, significantly slowing performance.

Judge Ups Patent Fine on Microsoft

A U.S. District Court has slapped an additional $25 million in "enhanced damages" on Microsoft for "litigation misconduct" in a case that z4 Technologies Inc. filed against the vendor and Autodesk Inc. in September 2004. In the ruling, Judge Leonard Davis said Microsoft tried to have z4's patents declared unenforceable even as it continued to willfully infringe on those patents and withhold evidence of its actions.

Dell, Users Scramble to Cope With Battery Recall

Apple issues similar notice because of fire danger in older laptop models

BY ROBERT MULLINS AND TODD R. WEISS

DELL INC. has devised several ways to help corporate customers replace the defective laptop PC batteries it's recalling because of the risk that they may overheat and cause fires. But many companies are expected to take the path of least resistance: leaving it up to end users to figure out whether their batteries are affected.

Dell is scrambling to implement a worldwide recall of 4.1 million batteries that were included with laptops made between July 1, 2004, and July 18 of this year. The computer maker announced the recall on Aug. 15 in cooperation with the U.S. Consumer Product Safety Commission, which last week disclosed a similar recall by Apple Computer Inc. of 1.8 million batteries sold with older models of its iBook G4 and PowerBook G4 systems. Both Dell's and Apple's suspect batteries were made by Sony Energy Devices Corp.

Personal Assistance

In some cases, Dell may set up and staff kiosks at the facilities of corporate users to handle the recall process for them, according to a spokeswoman for the vendor. She said Dell also will offer assistance to companies that have large, dedicated IT staffs that are assigned to track down the affected laptops within their operations, order the replacement batteries and install them after delivery. But other businesses "may just leave it to the end user," the spokeswoman said.

That's the approach being taken by Electronic Data Systems Corp. The outsourcing and IT services firm sells and maintains Dell computers for military, government and corporate customers, and it also uses Dell systems within its own organization, said EDS spokesman Travis Jacobsen.

If a company has workers in various locations, the simplest thing to do is have individual employees go to the Web site that Dell set up for the recall program to determine whether their batteries are subject to the recall and then apply online for replacements to be sent to the facilities where they work, Jacobsen said.

Stephen Kriegish, director of legislative information services for Tennessee's General Assembly in Nashville, said that only two of the legislature's 280 or so laptop batteries had been found to be affected by the Dell recall.

But that number could rise because the General Assembly isn't in session now, and some of its 132 members may have their laptops with them in their home districts, according to Kriegish. He said he sent a memo to notify the legislators about the battery recall and tell them that he will handle any recall procedures for them.

Charles King, an analyst at Pund-IT Inc. in Hayward, Calif., said there may have been an overreaction to the Dell recall, because only a small number of users have reported any overheating problems with their batteries. But the company "did the right thing, which was to issue a blanket recall," King added. "I'm not really sure what else they could have done." ▸

Mullins writes for the IDG News Service.

IBM Unveils High-End, Midrange Storage Arrays

BY SHARON FISHER

IBM last week brought out upgrades to its high-end and midrange storage arrays, along with a new line of high-end appliance and gateway storage offerings manufactured by Network Appliance Inc.

Analysts said IBM also plans to update its tape offerings soon. Roger Cox, a Gartner Inc. analyst who was briefed by IBM on the tape plans, said the company expects to add tape virtualization capabilities to its mainframe systems and encryption capabilities to the TS1120 high-capacity tape drive.

IBM declined to discuss its plans for the tape drives.

Bob Venable, enterprise systems manager at BlueCross BlueShield of Tennessee Inc., said that adding encryption capabilities to the TS 1120 tape drive will let his organization meet the requirements of privacy laws. Venable said that the new capabilities will also help the Chattanooga-based insurer meet its plan to eventually encrypt every piece of media that goes off-site.

The new high-end disk array unveiled last week, the IBM System Storage DS8000 Turbo, features 4Gbit/sec. Fibre Channel connectivity throughput — double the 2Gbit/sec. available now, according to IBM.

The Turbo line runs on IBM's Power5 microprocessors, which the company said boosts performance by 15% over older DS8000 models.

IBM also upgraded its midrange DS6000 array by adding support for Fibre Channel ATA drives and IBM's replication software.

Venable said that he expects the performance boost of the new Turbo system to top 15%. "Fifteen percent doesn't really unroll your socks, but people could get better performance than that," he said.

Venable said he is hoping to replace three older DS8000 models with the new Turbo drives.

BlueCross BlueShield of Tennessee doubles its storage capacity every year, according to Venable. The company currently stores about 300TB of data, he said.

Venable said BlueCross BlueShield was less interested in the upgraded DS6000s because it believes the DS8000s are more reliable. He noted that the insurer is considering replacing its low-end IBM DS4100 arrays with DS8000s.

IBM also furthered its relationship with Sunnyvale, Calif.-based NetApp with the unveiling of the System Storage N7000 series. NetApp will manufacture the new models for IBM, which are the same as the FAS6030 and FAS6070 models NetApp announced in May. ▸

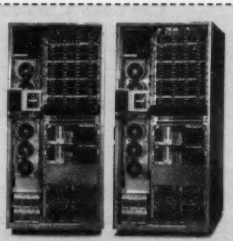
Storage Upgrades

DS8000 Turbo
Price: Starting at $213,400
Available: Sept. 9

DS6000 Series
Price: Starting at $102,600
Available: Sept. 9

N Series Enterprise Appliance
Price: Starting at $140,500
Available: Sept. 1

N Series Enterprise Gateway
Price: Starting at $113,500
Available: Sept. 22



The DS8000 Turbo offers 4Gbit/sec. Fibre Channel connectivity.

Bush Calls for Interoperable Fed Health IT Systems

Agencies must comply with HHS standards by Jan. 1

BY HEATHER HAVENSTEIN

President George W. Bush flexed the muscles of the federal government last week with an executive order requiring four agencies to adopt IT standards to ensure that health records can be shared.

The move is the government's latest effort to use its buying power to nurture the widespread adoption of interoperable IT systems for exchanging electronic patient data among public and private health care providers, according to users and analysts.

The executive order sets a Jan. 1 deadline for the Office of Personnel Management and the departments of Defense, Health and Human Services, and Veterans Affairs to meet interoperability standards to be set by HHS. The order requires any new or upgraded government health IT system to comply with the standards. An HHS advisory group is expected to deliver detailed interoperability specifications next month.

Widespread Impact

The order also requires that the IT systems of health care providers and insurance plans that have contracts with the agencies use these standards to exchange health data with the federal government.

Robert Kolodner, chief health informatics officer at the Department of Veterans Affairs, predicted that the order will likely hasten the adoption of the standards by doctors and hospitals outside of the VA network.

He noted that external adoption will help the VA gain access to the full records of veterans who receive health care from both the VA and outside providers. "It will allow us to be able to receive information from other providers and to be able to provide information to other providers," he said.

The VA is analyzing the order, said Kolodner, who added that he expects the VA to "be able to accommodate any changes that would be needed to adhere to the standards in the time frame" outlined in the order.

In a speech outlining the plan in Minnetonka, Minn., Bush said the move also aims to increase the transparency of federal agencies, providing patients with an opportunity to easily obtain information on the quality and price of care at various facilities.

The VA, Kolodner said, has been measuring the quality of its care for several years. Now, he said, "we'll need to determine if those measures meet the executive order."

An HHS spokesman said in a statement to *Computerworld* that the agency's Centers for Medicare and Medicaid Services (CMS) unit is already working with and adopting standards generated by a public/private advisory group called the American Health Information Community, which HHS created last year.

The spokesman said the CMS, which administers Medicare, Medicaid and the State Children's Health Insurance Program, "has taken the lead in posting the kind of information required in the executive order." This year, HHS started posting on its Web site information about how much hospitals are charging it to serve Medicare patients.

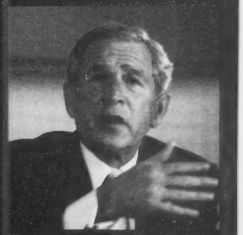
Thomas Leary, director of federal affairs at the Chicago-based Healthcare Information and Management Systems Society, which promotes the use of IT systems in health care, said the order signifies that the government is "putting a stake in the ground and saying they are serious about this."

The latest order comes two years after Bush signed one declaring that every American should have an electronic health record by 2014 as a way to cut costs and improve health care quality.

The Standards

Agencies responsible for federal health care programs will need to:

- Ensure that health IT systems meet HHS interoperability standards.
- Require that the health care providers, health plans or insurance companies they work with also ensure that new and upgraded IT systems meet the HHS standards.
- Put into place programs to use aggregated claims data to measure the quality of their services.



President George W. Bush speaks about health care during a visit to Minnetonka, Minn.

Users Fear IBM Will Dilute ISS Offerings

BY JAIKUMAR VIJAYAN

IBM's move last week to acquire Internet Security Systems Inc. created concerns among some ISS customers about the future of its security products and services.

IBM agreed to purchase Atlanta-based ISS in an all-cash deal worth $1.3 billion — the largest acquisition for IBM since it bought PricewaterhouseCoopers for $3.5 billion in cash and stock in 2002.

ISS, which reported about $300 million in revenue in 2005, is a provider of network security products and managed security services. The company sells a range of intrusion-prevention, intrusion-detection and so-called unified threat management appliances.

Bob Hartland, director of IT services at Waco, Texas-based Baylor University and a longtime ISS user, said he's taking a wait-and-see approach to the proposed acquisition.

With IBM's focus on services, Hartland said, it is unclear how long the company will sell stand-alone ISS products before forcing users to sign up for service contracts.

The university has "thoroughly enjoyed" its relationship with ISS, he said, but is now concerned about whether Baylor can maintain that bond with the much-bigger IBM.

Some ISS customers are likely to be upset at the company's "loss of independence as a stand-alone vendor," said Paul Stamp, an analyst at Forrester Research Inc. "There are some who likely chose ISS because they valued their independence from a larger company whose No. 1 priority isn't necessarily security."

Eric Latalladi, vice president and chief technology officer at J.B. Hanauer & Co., a Parsippany, N.J.-based financial services company and ISS user, also expressed such concerns.

"I don't always like dealing with 800-pound gorillas," said Latalladi, adding that it is unlikely his company will get the same level of attention from IBM as it received from ISS.

Val Rahmani, IBM's general manager of infrastructure management services, said the acquisition will help IBM deliver a range of "preemptive" and "scalable" products while bolstering the company's slate of managed security offerings.

Gartner Inc. analyst John Pescatore said he expects IBM to easily take advantage of the ISS managed services business, but he speculated about the future of the security products.

"IBM acquiring the managed services part of ISS makes sense," Pescatore said. But the addition of a full range of network security products makes little sense, he said.

"IBM is really strong in the ID and access management side of security, and that is totally different from network security," he said.

Moreover, the addition of the products will place IBM in direct competition with well-established vendors of network security offerings, such as Cisco Systems Inc., Enterasys Networks Inc. and Juniper Networks Inc., said Pescatore.

"The Proventia stuff is sort of a throwaway in this deal," said Jon Oltsik, an analyst at Enterprise Strategy Group Inc. in Milford, Mass. "Other than the existing installed base, it is a small piece of the deal."

When the deal is completed, ISS's operations will become part of IBM Global Services, and its software products will be integrated with IBM's Tivoli management suite, Rahmani said.

IBM's Gains

PRODUCTS

- Proventia-brand intrusion-prevention, intrusion-detection and unified threat management appliances
- BlackIce desktop and server-level firewall technologies

SECURITY SERVICES

- Vulnerability management, security event and log management, and managed firewall services
- X-Force Threat Analysis security threat intelligence service

BRIEFS

Microsoft, Citrix to Partner on New Line

Microsoft Corp. and Citrix Systems Inc. plan to develop a line of branch-office appliances that will combine Microsoft's Internet Security and Acceleration Server with Citrix's WANScaler network acceleration technology. The first appliance, to be based on the Windows Server 2003 operating system, is expected to ship by the end of 2007, said Wes Wasson, a Citrix vice president.

WebMethods Buys Tools for SOA Suite

WebMethods Inc. last week said it has purchased the bulk of the assets of Cerebra Inc. for an undisclosed sum and plans to embed the privately held vendor's technology into future versions of Fabric, its service-oriented architecture suite. WebMethods plans to use Cerebra's semantic metadata management technology as its metadata repository and to include it in the next version of Fabric.

Cisco to Buy Arroyo In $92M Deal

Cisco Systems Inc. has agreed to acquire on-demand video software company Arroyo Video Solutions Inc. for $92 million. The agreement came just days after Cisco's Aug. 10 purchase of a majority stake in data center company Nuova Systems Inc. Arroyo's software will likely be integrated with set-top boxes and equipment that Cisco gained in its purchase of Scientific-Atlanta Inc.

BEA Buys Flashline Repository Tool

BEA Systems Inc. has acquired Flashline Inc., a maker of metadata repositories for SOA projects. Terms of the deal weren't disclosed. BEA plans to incorporate the Flashline tool into its AquaLogic family as the AquaLogic Enterprise Repository to enable the tracking, governance and management of software used to build services within an SOA.

Penn State Turns to SOA To Automate Workflow

18-month effort covers 75-plus business processes used by 16,000 employees

BY HEATHER HAVENSTEIN

PENNSYLVANIA STATE University has overhauled the system it uses to manage its business processes and is now poised to begin running it campuswide using a new service-oriented architecture.

After working for 18 months to get new business process management (BPM) tools ready to replace a workflow system that was more than 15 years old, the University Park, Pa.-based school this fall will begin testing the system using noncritical processes.

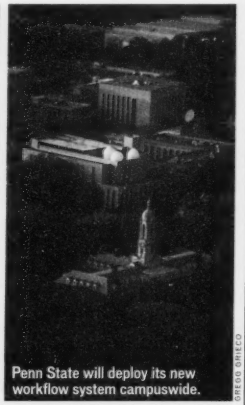
Once the test is completed, the system, called Workflow, will be extended to more-critical processes over the following 12 to 18 months. Officials said the system is expected to quickly reduce the cost of running the 75-plus business processes used by about 16,000 university employees in 23 locations.

The Workflow system will be the first application to run on Penn State's new SOA, which is still under development. The SOA, which is rolling out with the new BPM system, is designed to keep the university's IBM mainframe back-end system in place while simultaneously adding new Web-based applications.

Single Interface

When it's fully implemented, Workflow will provide a single interface to all of the school's business applications and will use single-sign-on and role-based access methods, said Ron Rash, senior director for administrative services at Penn State. "It had to be very, very easy to use in a small office, but it also needed to be very robust and auditable for our confidential financial transactions," he said.

The Workflow system is based on a BPM engine developed by Fujitsu Ltd. and sold by Software AG as the Crossvision Business Process Manager tool. The Workflow system also uses Darmstadt, Germany-based Software AG's enterprise service bus, called Crossvision Service Orchestrator, to access data from disparate back-end systems in various university departments, Rash said.



GREGG GRIECO

Penn State will deploy its new workflow system campuswide.

Although Rash declined to disclose the cost of the project, he maintained that it will reduce costs and improve processing times at the school.

For example, noted Beth Hayes, Workflow project manager at Penn State, the new system will allow supporting documents to be attached to a business process, which will eliminate the delays in approval caused by users waiting to receive paper documents.

In addition, the Workflow system will allow users to access systems based on their roles, a feature that will ease the IT maintenance requirements for 7,900 approval paths, Hayes added.

The system will also allow individual departments, which "literally have hundreds of processes they would love to automate," to undertake such tasks on their own, Rash noted.

One of the first paper forms to be automated in the new system will be undergraduate travel request forms. Automation could cut the length of that process from three weeks to less than a day, Hayes said.

Jason Bloomberg, an analyst at ZapThink LLC in Baltimore, said organizations such as Penn State are increasingly realizing that "dealing with BPM in a service-oriented way is really the only way to deal with heterogeneous IT resources."

In addition, while lines of business are reluctant to fund SOA projects, they usually are more than willing to invest in to solve a highly visible business problem like BPM. ▸

Oracle Set to Unveil Second Enterprise 9.0 App

BY MARC L. SONGINI

Oracle Corp. is expected to announce today the next piece of its Enterprise 9 ERP suite: PeopleSoft Enterprise Performance Management (EPM) 9.0.

The company said the application includes new analytical and reporting capabilities that can help organizations create and reach corporate strategic goals.

Oracle started shipping the first pieces of the new ERP system, including a CRM module, earlier this year. All of the modules are expected to be shipping by year's end.

The new version of the EPM software also adds a module called Campus Solutions Warehouse that will allow school administrators to consolidate fragmented student records and keep better track of trends in student populations, said Chris Leone, group vice president of application product strategy at Oracle.

The warehouse application will allow complex analysis of recruiting, admissions and student financial information, Oracle said. Ultimately, this can assist with improved recruiting and retention rates, it claimed.

The new version retains similar features that target the financial services and health care industries.

California State University in Long Beach has started developing a student data warehouse based on a prerelease version of the application, according to Donna Furon, the school's data warehouse project manager. The university already runs PeopleSoft Enterprise 8.9 academic, human capital management and financial applications.

Furon said her department hopes to use the new software to create several data marts that can help in generating financial aid, human resources and student administration operations reports.

She said the university has yet to set a date for fully implementing the new version of the EPM software.

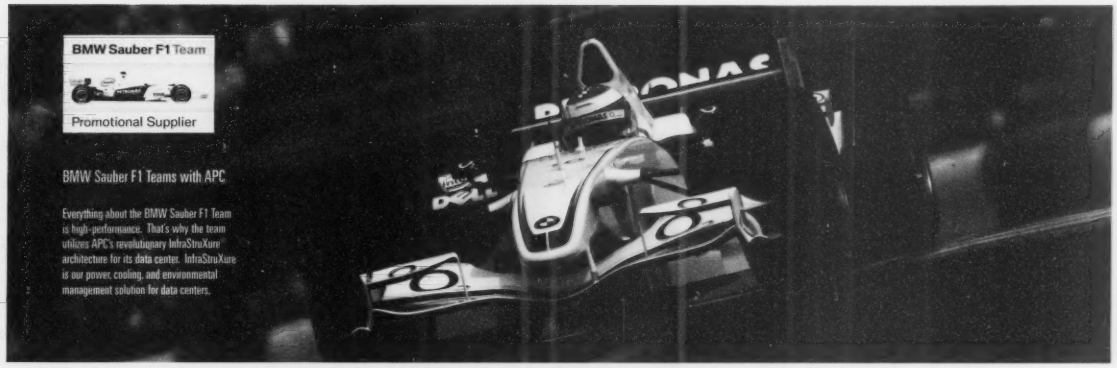
Leone said EPM 9.0 also includes improved regulatory compliance features, including the ability to better consolidate global financial information for reporting. That feature will allow, for instance, a parent company to analyze the relevant ownership and control rules of a subsidiary, he said.

The new version also adds integration with PeopleSoft's Workforce Rewards tool, which helps companies determine how to best compensate their employees based on performance, he said.

The EPM 9 product is targeted primarily at PeopleSoft's installed base, Leone noted.

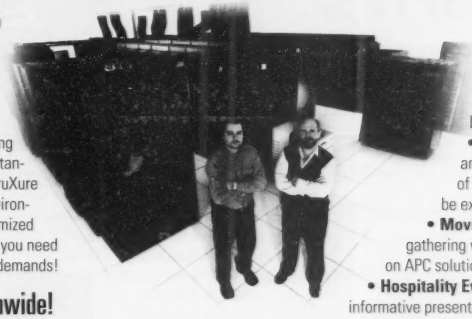
The application is available now. Pricing wasn't disclosed. ▸

Announcing APC Data Center Test Drive Days, September 18-22


BMW Sauber F1 Team
Promotional Supplier
BMW Sauber F1 Teams with APC
Everything about the BMW Sauber F1 Team is high-performance. That's why the team utilizes APC's revolutionary InfraStruXure architecture for its data center. InfraStruXure is our power, cooling, and environmental management solution for data centers.

Winning companies agree: New InfraStruXure® architecture drives high-performance data centers

Get up to speed on the fastest-growing data center technology. Find out how InfraStruXure® architecture can help you consolidate your servers, implement high density blade environments, improve availability and agility, and lower your total cost of ownership. Using an open, building-block approach and standardized, modular components, InfraStruXure fully integrates power, cooling, and environmental management within a rack-optimized design. Allows you to install only what you need today, yet scales easily to meet future demands!



APC Education Events Nationwide!

Get up to speed on the latest data center technology and methodology at **FREE** education events offered during **APC Data Center Test Drive Days**, September 18-22.

- **Real Time InfraStruXure® Events** — See InfraStruXure in a real world environment and learn first-hand why APC's revolutionary approach is changing the way the world designs, builds and manages data centers.
- **Trade Shows** — Join your peers and see APC solutions in action at one of the trade shows where we will be exhibiting.
- **Movie Events** — The perfect venue for gathering with colleagues, hearing the latest news on APC solutions and enjoying a night at the movies.
- **Hospitality Events** — Enjoy a fine dinner and informative presentation, compliments of APC.

For dates and locations in your area, **call 888-289-APCC at extension 3660 or visit www.apc.com/promo and enter key code n236x**

A recent vendor scorecard by readers of *CIO* Magazine put APC at the top! Find out how our engineers can put your data center in the pole position and attend our test drive events!

Get FREE gear, plus a chance to win great prizes!*

When you attend an APC Test Drive Days event (Sept. 18-22), you'll get **FREE APC gear**** and also be entered to win one of the following great prizes:

**Actual items may vary. Quantities limited.

For dates and locations of events during APC Test Drive Days (September 18-22) in your area, and contest rules, **call 888-289-APCC at extension 3660 or visit www.apc.com/promo and enter key code n236x**.

APC
Legendary Reliability®

©2006 American Power Conversion Corporation. All trademarks are property of their owners. 132 Fairgrounds Road, West Kingston, RI 02892 USA
*Go to www.apc.com/promo and enter keycode for terms and conditions, complete contest rules, dates and locations. APC3A6EF-US

BRIEFS

Borland Hires Dell Exec to Head R&D

Borland Software Corp. has named Dell Inc. executive Peter Morowski to head its research and development operation as senior vice president of engineering. Morowski, who was vice president of software at Dell, takes over from Rick Jackson, who had been both head of engineering and chief marketing officer at Borland. Jackson will retain the latter post.

Intel Set to Formally Unveil Tulsa Chip

Intel Corp. will unveil its Tulsa chip for multiprocessor servers Aug. 29, after having shipped it to vendors for several weeks. The company hopes the chip will stem its loss of market share to the Opteron chip from Advanced Micro Devices Inc. Designed for servers with four or more processors, Tulsa will be marketed as an upgrade from Intel's Paxville-MP chip, said Intel engineers at the Hot Chips trade show last week in Palo Alto, Calif.

Sophos Ships Tool To Detect Rootkits

Sophos PLC has released a free tool to help PC users root out rootkits. The Sophos Anti-Rootkit software will detect and remove both known and unknown rootkits, and it will warn systems administrators if removing the software might harm operating system integrity. The tool runs on the Windows NT, 2000 and XP and Windows Server 2003 operating systems.

IBM Upgrades Low-End Unix Line

IBM has added four-core processing capability to the low end of its System p Unix line of servers. The quad-core System p5 505Q Express is priced from $5,500 to more than $20,000, depending on the configuration. At the same time, IBM also announced processor upgrades to its dual- and quad-core Express systems, which are designed for midsize businesses.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL

MATTHEW FAULKNER

Miracles Are Now Part of IT's . . .

. . . disaster recovery strategy. Well, maybe not officially, but you might conclude as much by looking at the results of a survey of 57 high-level executives from companies with annual revenue of $500 million and up. Sixty-three percent gave their companies a C grade or lower on their ability "to protect the workforce and business in the event of [an] avian flu pandemic." Harris Interactive Inc. conducted the survey in late spring for SunGard Availability Services, a division of SunGard Data Systems Inc. in Wayne, Pa., and the results are being released this week. What's even worse for IT than the low grades is the fact that 95% of the surveyed business leaders said acceptable post-disaster downtime in their organizations has dropped to an average of just under 11 hours, down from 20 hours in a similar survey done in 2004. Furthermore, they expect that number to fall to nine hours within the next year or two.

PALERMO: Downtime goals are heading down.

"The target has moved," says Dave Palermo, vice president of marketing at the SunGard unit. But wait, it's even worse: 58% of the respondents said their budgets for achieving the tougher recovery goals have remained flat or decreased. Thankfully, front-page disasters are pretty rare. But unplanned downtime isn't. Hardware failure is the top cause, says Palermo, with damage to wires wrought by backhoes coming in second. Five percent of those surveyed admitted that "wishful thinking" that nothing bad would ever happen to their companies was among their reasons for not bolstering IT disaster recovery programs. For them, you can only hope that miracles never cease. And that lumbering backhoes don't dig near them.

Thinner optical discs yield . . .

. . . fatter data stores. Early next year, Maxell Corporation of America in Fair Lawn, N.J., plans to begin shipping its stacked volumetric optical disc (SVOD) cartridge technology for data backup and archiving uses. According to Rich D'Ambrise, director of technology at the subsidiary of Hitachi Maxell Ltd., one SVOD unit will hold 100 ultrathin DVDs and be capable of storing 940GB of uncompressed data. About the size of one of those paperback Russian novels that you read (or didn't read) in college, the SVODs will comply with Blu-ray, HD-DVD and other standard storage formats, D'Ambrise says. Pricing has yet to be set.

1/13 Thickness of SVOD media compared with common DVDs.

Happy 25th birthday, PC. But now . . .

. . . just go away, please. Few would dispute that when IBM unveiled its Model 5150 personal computer a quarter-century ago this month, it unleashed a technological revolution. Even fewer would dispute that the PC has been a nasty headache for IT shops to manage. But soon you'll be able to make that headache go away, claims John Kish, CEO of thin-client vendor Wyse Technology Inc. in San Jose. Kish says Wyse plans to release an updated chip set and software in Q4 that will all but eliminate the different experiences end users have on PCs and thin clients. The new chips will include such PC-like capabilities as advanced video compression, Bluetooth, IP support and more, so thin clients won't need to rely on servers to deliver those features to users. But Kish isn't just talking about deploying more thin-client desktops. He also contends that by next year, you'll be able to give workers mobile thin clients with integrated Wi-Fi. "The PC is actually just getting sucked into the network, and it will morph itself into a thin client," he predicts.

PCs are morphing into thin clients, says KISH.

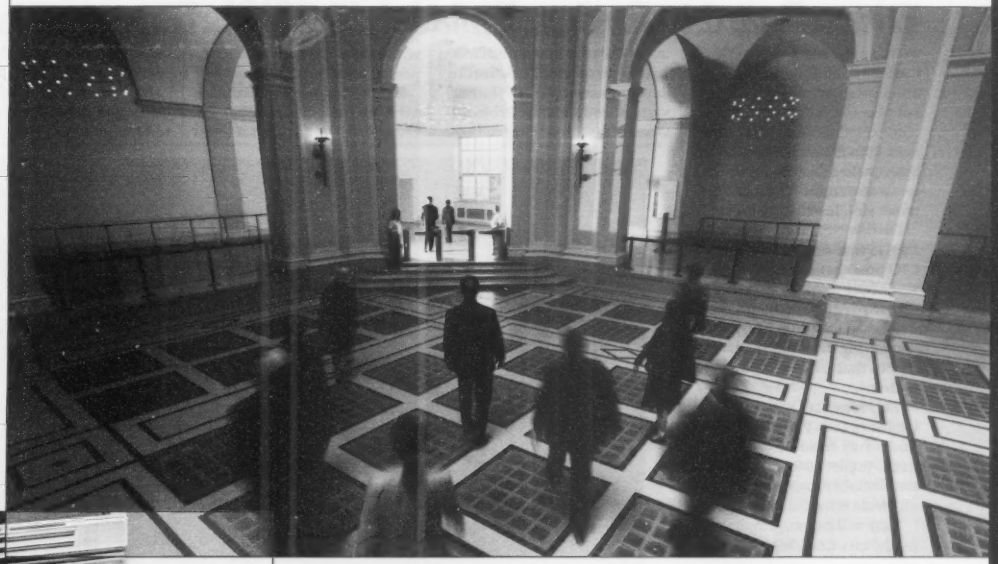
Turn anyone's PC into a personal . . .

. . . Web server. Michael Liubinskas, chief marketing officer at Zapr Ltd. in Singapore, argues that file sharing remains too complex. To make it easier, his company's namesake file-sharing software, now in beta, lets you turn any Windows PC into a Web server. End users simply locate a file or file folder on their system through the dead-simple Zapr user interface and click a "share" button. The software then assigns URLs to the files. Liubinskas says that when Zapr is ready for general availability in early 2007, it will include a tool for creating permissions-based access policies so users can decide whether to let anyone on the Web see their files or restrict access to specific individuals.

Although the company is mainly targeting consumers, Liubinskas suggests that IT managers might want to look carefully at the free software, just as many did with instant messaging when it was merely a hip toy for teenagers. For example, he says, mobile workers and employees in remote offices who are stuck using dial-up connections will no longer have to ponder the dilemma of whether to download files from headquarters just to read them. Instead, they can surf the PCs of their colleagues from afar.

LIUBINSKAS: Web servers for everyone.

This could turn out to be another great PC productivity boon — or perhaps another reason for IT managers to stock aspirin in extra-large bottles. ▸



NEC Express5800/ft series Server

Who has the credentials to check the credentials of 13,000 government employees?

With NEC's fault tolerant servers achieving up to 99.999% uptime, only those authorized to access your building will gain access to your building. NEC's proven track record as a global technologies leader, combined with 30 years of research and development experience in the security technologies field, offers much-needed assurance in today's increasingly unsure times. Continuous security monitoring solutions. It's one more way NEC empowers people through innovation.

www.necus.com/security

IT SERVICES AND SOFTWARE **ENTERPRISE NETWORKING AND COMPUTING** SEMICONDUCTORS IMAGING AND DISPLAYS

©NEC Corporation 2006. NEC and the NEC logo are registered trademarks of NEC Corporation. Empowered by Innovation is a trademark of NEC Corporation.

Empowered by Innovation **NEC**

Ethics Board to Review Philadelphia CIO's Departure

BY TODD R. WEISS

Days after Philadelphia's CIO announced plans to resign her post to take a job with a company that has done business with the city, Mayor John Street asked the board of ethics to determine whether the move violates city statutes.

Dianah Neff announced on Aug. 15 that she is leaving the CIO post that she has held since May 2001 to become a senior partner at Alpharetta, Ga.-based Civitium LLC, a consulting firm that specializes in municipal wireless systems.

The company had done business with Philadelphia under two separate contracts until August 2005, helping the municipality create plans for a citywide wireless network.

Neff will remain employed by the city until Sept. 8. She will join the consulting firm later in the month.

A spokesman for the mayor's office last week confirmed that Street has asked the ethics board to review Neff's resignation but said that no wrongdoing should be implied by the review. The spokesman refused to comment further on the matter.

Comfortable With Review

In an interview last week, Neff said she is comfortable with the ethics board review.

"It's being overly cautious," which is appropriate because the mayor's administration has been scrutinized over ethics issues, she said. Neff said that she has no problem with a review, adding, "I believe there's no issue here, and I believe that's what they'll find."

Neff said that Civitium has not done any work for the city since last August. That work cost about $300,000 and involved radio frequency analyses to ensure that the planned wireless network wouldn't interfere with other systems, she said.

Neff's resignation comes at a time when Philadelphia is still enmeshed in negotiations with Oracle Corp. over delays in deploying a complex new billing system for its half-million water customers. The effort to develop and deploy the billing system, code-named Project Ocean, has already taken three years and cost more than expected at $18 million.

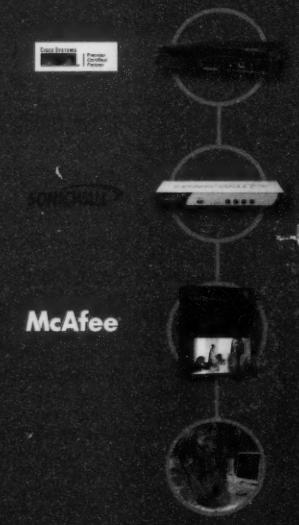
The new system will replace a 30-year-old, custom-built application that officials said isn't capable of collecting all the revenue due to the city.

Neff's first deputy CIO, Terry Phillis, has been named to replace her. ▸

> **"I believe there's no issue here, and I believe that's what they'll find."**
>
> **DIANAH NEFF,** PHILADELPHIA'S CIO

Advanced security not only protects your network.

(It does wonders for your confidence.)



Cisco® ASA 5510 Security Plus Appliance

Provides a proactive threat defense that stops attacks before they spread using advanced security, a market-proven firewall, and antivirus and VPN capabilities.

SonicWALL SSL-VPN 2000

Protects your network with powerful SonicWALL NetExtender technology that seamlessly integrates behind virtually any firewall.

McAfee® Total Protection for Small Business Advanced

Defends against viruses, spyware, hackers and identity thieves with always-on, always-up-to-date protection across desktops and servers.

CDW Security Specialist

Call CDW today and speak to an expert who knows what you need to defend against threats before they enter your network.

The Security Solutions You Need When You Need Them

Today's sophisticated security threats go way beyond what antivirus can handle. That's why CDW has all the technology you need for full network gateway protection. From firewall protection to antispyware to intrusion detection and beyond, we have a wide variety of the top names in the industry. And we have the expertise to answer questions, offer advice and build solutions that will hold up to the worst threats out there. So call today and get the total protection you need.

Offer subject to CDW's standard terms and conditions of sale, available at CDW.com. © 2006 CDW Corporation

OnStor Readies Release of First NAS Array

BY SHARON FISHER

OnStor Inc. today is set to unveil its first network-attached storage system.

The new Pantera Clustered NAS product will be packaged with the Campbell, Calif.-based company's Bobcat NAS gateway. The gateway product previously required users to purchase a storage system from another vendor.

Jon Toor, vice president of marketing at OnStor, said the bundled system was developed in response to users who have been seeking a turnkey NAS offering from the company.

Chris Ferry, director of operations at FortuneCity.com Inc., a New York-based Web hosting provider, started using the new OnStor Pantera NAS system about a week ago.

Ferry said that he also evaluated FAS270 and R200 storage systems from Network Appliance Inc. and a package that combined Celerra NS502 and Clariion CX500 storage systems from EMC Corp. The costs of the NetApp and EMC systems were nearly double the cost of the systems FortuneCity.com purchased from OnStor, Ferry said.

He estimated that the OnStor arrays were less than $100,000, while the "EMC and NetApp quotes were in the high $100,000s and low $200,000s range."

In addition, Ferry said he expects that upgrading the Pantera system will be less expensive for users than upgrading storage products from other vendors, such as EMC.

Upgrade Plans

FortuneCity.com has installed two OnStor Pantera clusters with a combined 15TB of storage. When more storage capacity is required, the company will upgrade using the Pantera offerings, he said.

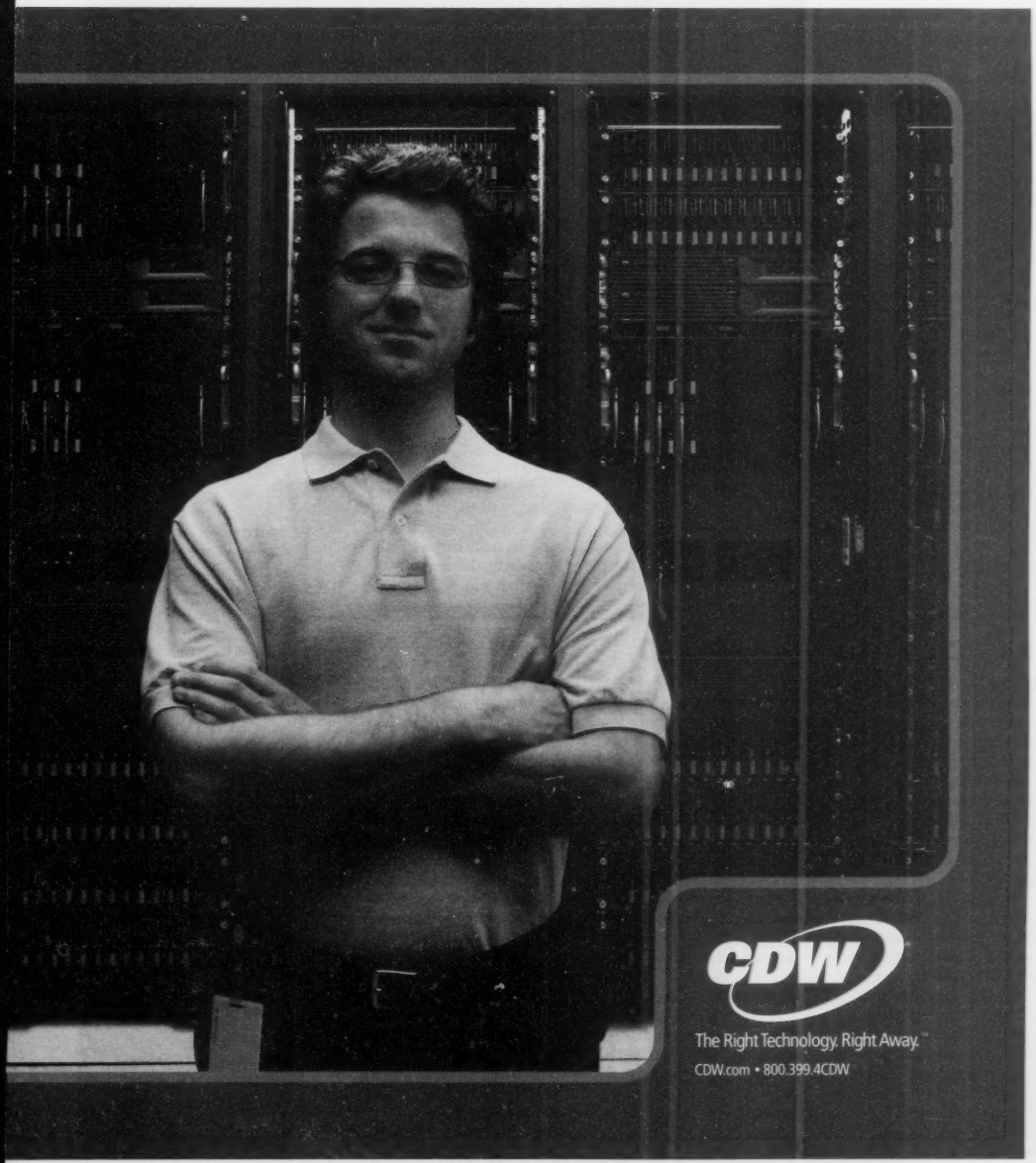
Overall, the company has 58TB of storage, including two mirrored SATABeast storage arrays from Nexsan Technologies Inc. in Woodland Hills, Calif., along with RAID arrays from Winchester Systems Inc. in Burlington, Mass.

Greg Schulz, an analyst at StorageIO in Stillwater, Minn., said the turnkey OnStor system offers a lower price tag and is less complex to use than competing systems from vendors such as NetApp and EMC.

Schulz suggested that OnStor can use the Pantera system to attract the attention of users at sites long dominated by the systems of larger vendors.

The Pantera Clustered NAS product is available now and starts at less than $40,000 for a 6TB system, according to OnStor.

Clustered systems with 12TB of storage and enhanced high-availability features are priced at about $100,000, the company said.



Continued from page 1

Breaches

ciplinary actions to become more common as organizations face increasing public pressure to address data breaches that they suffer, said Robert Scott, managing partner at Dallas-based law firm Scott & Scott LLP.

"In order for companies to have a credible position in the marketplace, they're going to have to explain in a public way what they have done to address the issue," Scott said. "The risks that companies face from a liability and a reputation perspective are such that when breaches occur, people will not only need to be held accountable, but heads will have to roll."

Such "forced accountability" is at least partly the result of the intense media scrutiny that data breaches now receive, said Bob Hartland, director of IT, servers and networking systems at Baylor University in Waco, Texas. The attention has heightened public concerns and "made a lot of people nervous," he said.

Tim O'Pry, CTO at The Henssler Financial Group in Kennesaw, Ga., said that accountability is necessary and that it's reasonable to expect that people will lose their jobs if their negligence causes or contributes to a security breach.

The problem is that many times, the workers who are held responsible for breaches are only following what until then had been accepted practices within their companies, O'Pry said. And they may not have had the responsibility or authority to change the practices, he noted.

But as companies face increasing pressure to "do something" in the wake of a breach, the fallout often means demotions, firings or other personnel actions, said O'Pry. That approach is part of a wider tendency by corporate officials to deal with data security issues on a reactive basis, he added.

"This knee-jerk, after-the-fact mentality is pervasive with many aspects of security," O'Pry said.

"Somebody has to take the chop for [breaches]," said Lloyd Hession, chief security officer at BT Radianz, a New York-based company that offers telecommunications services to the financial industry. "The real question, though, is whether it's the right guys' heads that are rolling."

PAYING THE PRICE

AOL

WHAT HAPPENED: The company's research division bypassed required privacy reviews and posted the details of Internet searches done by more than 650,000 subscribers.

FALLOUT: AOL CTO Maureen Govern resigned last week and was replaced by her predecessor, and a researcher and a manager in the research division were fired.

Ohio University

WHAT HAPPENED: A series of security breaches was discovered on the school's network in April and May. One of them exposed confidential information on 137,000 people.

FALLOUT: CIO William Sams said he planned to resign, then he fired the director of communication network services and the manager of Internet and systems.

Forging closer ties with IT audit teams is a key to survival in the new environment, Hession advised. "If you think you have an issue, go to Audit and tell them about it," he said. If the audit group concurs that a security problem exists, it should be easier to get the resources needed to fix it, Hession added.

And if the auditors agree that there's an issue "and nobody does anything about it, you probably don't need to be falling on your sword" if a data breach does occur, he said.

Companywide outreach and communication also are critical, according to Scott.

Managers who are responsible for IT security "need to do a better job of articulating a business case [that] suggests that ignoring data security and shuffling it to the bottom of the priority list is a recipe for disaster," he said.

In addition to the incidents at AOL and Ohio University, the massive security breach disclosed by the U.S. Department of Veterans Affairs in May resulted in a shake-up that included the resignation of the agency's chief information security officer. But the CISO's departure is thought to have been driven by his frustration over organizational issues within the VA, which traditionally has split most IT and security responsibilities among its three main operating divisions. ▸

AOL Tightens Data Rules

IN ADDITION TO accepting the resignation of its chief technology officer and firing two other employees, AOL last week announced several steps that it is taking to prevent further security breaches.

Internet privacy watchdogs have criticized AOL for disclosing data on more than 2 million searches done in March, April and May. The Time Warner Inc. unit acknowledged earlier this month that some of its researchers posted the data online, without mandated privacy reviews, even though it was supposed to be used only within AOL.

In an e-mail message to employees that was released to the IDG News Service, AOL President Jon Miller said that an internal task force will determine how long the company should keep search data and other information. The task force, which will be co-chaired by company Vice Chairman Ted Leonsis and AOL's general counsel, will also consider ways to improve the privacy policy.

In the e-mail, Miller said AOL will impose additional restrictions on access to its databases of subscriber information, regardless of whether they include personal data. The company also plans to develop new systems to ensure that sensitive information isn't included in its research databases, he wrote.

And all AOL employees will be trained to be more conscious of privacy issues, according to Miller. The breach occurred "because some employees did not exercise good judgment or review their proposal with our privacy team," he said.

Allen Weiner, an analyst at Gartner Inc., said the forced resignation of the CTO and the firing of two workers sends a message to other AOL employees that there are consequences for making mistakes related to data security and privacy issues.

– ROBERT MULLINS, IDG NEWS SERVICE

Health Care Firm Recovers Stolen Laptop

A HEALTH CARE GROUP in Michigan disclosed last Tuesday that a laptop PC containing personal information on about 28,000 home-care patients had been stolen in a car theft. But the company said Thursday that it had recovered the laptop and determined that the thieves hadn't accessed the patient data.

The data on the Dell laptop was encrypted and password-protected, according to a statement from William Beaumont Hospital in Royal Oak. But the car theft, which occurred Aug. 5 in Detroit, caused particular concern among hospital officials, because the affected employee's ID access code and password were written on a piece of paper that was taped to the inside of the stolen PC.

The employee, a nurse who has since been fired, was a new worker and was still completing orientation procedures, the hospital said when it disclosed the theft. It noted that Detroit police had recovered the nurse's car without the laptop.

However, Beaumont later said that the laptop had been found after a resident of the area from which the vehicle was stolen called a hospital official and said the thief had dropped the computer while being chased on foot by someone from the neighborhood.

The system's hard drive was examined by an independent computer forensics expert, who informed Beaumont that the patient data hadn't been accessed since the theft took place.

The data included the names, addresses, birth dates, medical insurance information, Social Security numbers and some personal health records of patients who had received home-care treatment from Beaumont over the past three years. The theft of the computer wasn't related to any knowledge of its data contents, the company said, adding that the system was in a bag in the back seat of the stolen car.

Beaumont operates hospitals in Royal Oak and Troy, Mich., plus medical clinics, other facilities and the home-care service. Chris Hengstebeck, director of security at the hospital in Troy, said in a statement that Beaumont officials "are so relieved to recover the laptop so that we can put our patients' minds at rest. And we are relieved that no one's personal or medical information was accessed."

Nonetheless, the company has taken a series of internal and external actions in response to the theft. For example, Hengstebeck said in an interview that the Beaumont Home Care employees directly involved in the incident no longer work for the company. That includes the nurse and her direct managers, he said.

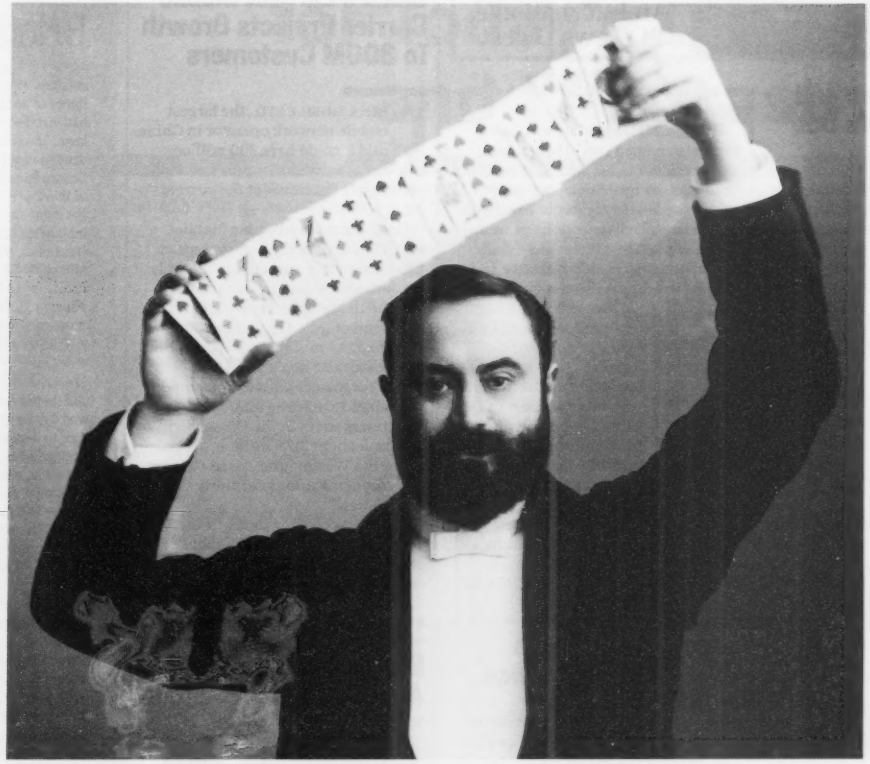
Beaumont also said that its IT department has reviewed and strengthened computer security systems and processes. In addition, IT staffers have inspected all the laptops used by home-care workers and are reinforcing security and password procedures with employees companywide.

Beaumont sent a letter to all of its home-care patients to notify them about the missing laptop, and it has set up a toll-free hot line and a Web site to provide information. The company also will provide a year's worth of credit-reporting services to Beaumont Home Care patients through Trans Union LLC. That offer remains in place despite the recovery of the laptop, "out of consideration for the stress and concern caused patients by the theft," Beaumont said.

The company is paying a $2,500 reward to the Detroit resident who made the phone call.

– LINDA ROSENCRANCE

Innovations by **InterSystems**



Teach old applications new tricks.

Chances are you have users who want your applications to do new and wondrous things. So you've probably tried rewriting them, and know how difficult that can be.

We have an easy way to enhance applications *without* rewriting – adding functionality and new user interfaces, and giving your applications the capability to work together as an ensemble.

It's not magic. It's Ensemble – a software innovation by InterSystems that enables you to extend your applications with a browser-based user interface, adaptable workflow, rules-based business processes, executive dashboards, and more. In addition, Ensemble gives you the ability to rapidly connect people and processes.

We are InterSystems, a global software company with a 28-year track record of innovations that enrich applications.

InterSystems
ENSEMBLE®

Read case studies about this exciting innovation at **www.InterSystems.com/Enrich2A**

© 2006 InterSystems Corporation. All rights reserved. InterSystems Ensemble is a registered trademark of InterSystems Corporation. 8-06 EnsEn2CoWo

GLOBAL DISPATCHES

An International IT News Digest

Infosys Chairman and Co-founder Bows Out

BANGALORE, INDIA

N.R. NARAYANA Murthy, a co-founder of Infosys Technologies Ltd. and one of the pioneers of India's outsourcing industry, last week stepped down as the company's executive chairman after reaching the mandatory retirement age of 60.

Murthy was CEO of Infosys from the company's inception in 1981 until 2002, when fellow co-founders Nandan Nilekani and S. Gopalakrishnan were named CEO and chief operating officer, respectively. Murthy was shifted to the executive chairman post at that time.

GLOBAL FACT

1,802

Total number of cybercrimes committed in Japan during the first six months of this year.

SOURCE: THE JAPANESE NATIONAL POLICE AGENCY

Despite now giving up that position, Murthy will continue to work at Bangalore-based Infosys as its nonexecutive chairman and chief mentor. In an interview earlier this year, Murthy said he planned to dedicate himself to social causes after leaving his full-time job at Infosys. He also dismissed widespread speculation that he might pursue a political career.

Murthy and six other people started Infosys with a combined investment of 10,000 Indian rupees (about $1,000 U.S. at the time). The company is now the second-largest outsourcing and IT services firm in India, trailing only Tata Consultancy Services Ltd.

For the fiscal year that ended March 31, Infosys posted total revenue of 90.3 billion Indian rupees ($2.15 billion U.S. at the time), up 35% from the previous year.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Lenovo Hires More Dell Executives to Head New Asian Units

SINGAPORE

LENOVO GROUP Ltd. plans to unite its customer service operations under a new group that will be based in Singapore and led by yet another executive poached from Dell Inc.

The new Lenovo Services business unit, which was announced last week, will be headed by Senior Vice President Christopher Askew, who had been vice president of Dell Services for Asia-Pacific and Japan.

Raleigh, N.C.-based Lenovo last week also named David Schmook, a vice president of marketing at Dell, to head another new Singapore-based business unit, the Center of Excellence.

The latest Dell defections came days after the president of its Asia-Pacific operations said earlier executive resignations won't hurt the computer maker.

Steve Felice, president of Singapore-based Dell Asia-Pacific, was reacting at the time to the departure of David Miller, who was president of Dell China, and Sotaro Amano, his counterpart in Japan, both of whom left for posts at Lenovo.

"We have a very deep bench," said Felice. "We've been planning for succession."

NANCY GOHRING AND SUMNER LEMON, IDG NEWS SERVICE

Wipro Will Manage Wi-Fi Testing Service

BANGALORE

THE WI-FI Alliance has chosen offshore IT services firm Wipro Ltd. to set up a precertification test lab to help vendors of Wi-Fi devices prepare for final Wi-Fi Alliance certification of their products.

The test lab, which will be in Bangalore, is the third precertification lab authorized worldwide by the Wi-Fi Alliance, according to Frank Hanzlik, the trade group's managing director. The other labs are in the U.S. and Taiwan.

Precertification testing allows Wi-Fi Alliance members to test their devices and troubleshoot problems before beginning the formal certification process, Hanzlik said. The alliance tests and certifies products for compliance with its Wi-Fi specifications in an effort to ensure that offerings from different vendors are interoperable.

The Wi-Fi lab adds to the portfolio of Wipro's testing services business, said Suresh Vaswani, president of the company's global IT services lines. Wipro said its testing services generated $57 million (U.S.) in revenue during the quarter that ended June 30.

■ JOHN RIBEIRO, IDG NEWS SERVICE

China's Largest Mobile Carrier Projects Growth To 300M Customers

HONG KONG

CHINA MOBILE LTD., the largest mobile network operator in China, said it could have 300 million wireless subscribers by year's end if its growth rate continues at the current pace.

Hong Kong-based China Mobile said it has been adding an average of 4.29 million new subscribers monthly in China this year. The company claimed to have 278.3 million users as of the end of July. That number will swell to 299.7 million by December if the growth rate holds, it said.

The company's Chinese customer base already tops the total number of wireless users in the U.S., which stands at about 217.9 million, according to the Washington-based Cellular Telecommunications & Internet Association.

Overall, according to the Chinese government, the number of mobile phone users hit 431.8 million in July, including 101.4 million who subscribe to China United Communications Corp.

■ DAN NYSTEDT, IDG NEWS SERVICE

Microsoft Exec Touts Asian R&D Capabilities

SINGAPORE

ASIAN COUNTRIES are playing a bigger role in the development of new technologies, and the region's importance as an R&D center will continue to grow, said one of Microsoft Corp.'s top executives in Asia.

"We think that Asia will be at the center of, and in many ways will lead, global innovation over the next decade," said Oliver Roll, general manager of Microsoft's Singapore-based Asia-Pacific operations.

Roll noted that the company's Microsoft Research unit is working on a variety of projects there, including development of next-generation user interfaces, Internet search capabilities, cryptography and technologies for emerging markets.

Microsoft has also invested heavily in software development centers across Asia to try to tap into different areas of expertise. "Countries are going to become niche players and experts in niche fields," Roll said. "It's not always going to be China and India."

■ SUMNER LEMON, IDG NEWS SERVICE

Compiled by Mike Bucken.

Briefly Noted

Microsoft last week released two versions of Windows XP in South Korea to comply with a ruling that it had violated the country's fair trade laws. The release meets an Aug. 24 deadline set by the Korea Fair Trade Commission for offering versions of Windows XP with and without the company's media player and instant messaging software. Last December, the commission fined Microsoft 33 billion Korean won ($32 million U.S. at the time) for abusing its dominance of the PC operating system market.

■ JEREMY KIRK, IDG NEWS SERVICE

Freescale Semiconductor Inc. in Austin has set up a second research and development center in Bangalore to develop software for wireless technologies. The center complements an existing software facility in Bangalore and a chip design center in Noida. The company said it plans to hire 1,500 more engineers in India over the next four years.

■ JOHN RIBEIRO, IDG NEWS SERVICE

LogicaCMG PLC has agreed to buy fellow IT services firm WM-data Nordic AB in a cash and stock deal valued at about £882 million ($1.6 billion U.S.). LogicaCMG in London said Stockholm-based WM-data will help extend its customer base into the Nordic countries. The combined company will have about £3 billion ($5.7 billion U.S.) in annual revenue and nearly 40,000 employees.

■ NANCY GOHRING, IDG NEWS SERVICE

Advanced Micro Devices Inc. last week opened a research and development center in Shanghai and said it plans to employ hundreds of workers there. The facility is AMD's largest R&D center outside the U.S., according to the company. AMD didn't disclose the cost of the facility.

■ STEVEN SCHWANKERT, IDG NEWS SERVICE

Nortel Networks Corp. is setting up a product design, development and testing center in Bangalore that's expected to employ more than 100 engineers by year's end. The first employees will come from the India-based development team of Tasman Networks Inc., which Nortel acquired in February. The center will work on advanced routers plus Ethernet switching and security.

■ JOHN RIBEIRO, IDG NEWS SERVICE

COMPUTERWORLD

Find Robust Solutions for Today's Data Center and IT Infrastructure

INFRASTRUCTURE MANAGEMENT WORLD

IT STRATEGIES FOR THE DYNAMIC ENTERPRISE

September 11-13, 2006

Westin Kierland Resort

Scottsdale, Arizona

The Leading Conference for:

- Enterprise IT Management
- Data Center Management
- Network Server and Storage Management
- Network and Communications Management
- Infrastructure and Data Architects
- Systems Integration Specialists
- Enterprise Security Management

Featured speakers include:

GEOFFREY MOORE
Bestselling Author of *Dealing with Darwin*, *Crossing the Chasm*, and *Inside the Tornado*; and Managing Director, TCG Advisors

DAN AGRONOW
Chief Technology Officer, The Weather Channel Interactive (TWCi)

ANDRES CARVALLO
Chief Information Officer, Austin Energy

LEE CONGDON
Vice President of Corporate Technology, Capital One

FRANK ENFANTO
Vice President, Health Care Services Systems Delivery, Blue Cross Blue Shield of Massachusetts

JOSEPH KENNEDY
Vice President, Technology Architecture and R & D, State Street Corporation

ATEFEH RIAZI
Worldwide Chief Information Officer & Senior Partner, Ogilvy & Mather Worldwide, New York

LINDA WILBANKS, PH.D.
Chief Information Officer, National Nuclear Security Administration

Sponsors of Infrastructure Management World 2006 include:

Sponsors as of 8/24/06

PLATINUM SPONSORS	GOLD SPONSORS	SILVER SPONSORS	MEDIA SPONSORS
APC Legendary Reliability	BROADCOM.	Data Synapse	COMPUTERWORLD
intel	BROCADE	f5	The Data Center Journal
"BEST PRACTICES" AWARD PROGRAM SPONSOR	Cognizant Technology Solutions	GLASSHOUSE	Extension MEDIA
EMC² where information lives	dbaDIRECT	integratedmobile	Ventana PUBLIC RELATIONS
	EMERSON. Network Power	License Tracker	ASSOCIATION SPONSOR
	iGATE	MKS	SNIA
	WysDM Software	ONARO	EVENT PARTNER
		ProactiveNet	IDC
		riverbed	
		TeamQuest.	
		utimaco software	

For complete details and to register now, visit www.imworldusa.com

For sponsorship opportunities, call Colin Longval at 1-508-820-8665, or Leo Leger at 1-508-820-8212

Rational Targets IT Compliance Needs

General manager says Jazz project will integrate product portfolio, aid in audits

BY HEATHER HAVENSTEIN

Danny Sabbah, *a 32-year veteran of IBM, has overseen the company's Rational software unit since May 2005. In an interview with* Computerworld *last week, he spoke about the increasing pressure on development organizations to implement mechanisms that can trace activities throughout the software development life cycle. Without such capabilities, users could fail audits for compliance with regulations such as the Sarbanes-Oxley Act. Sabbah, Rational's general manager, also discussed the unit's new Eclipse-based project, code-named Jazz, which aims to link the various components of the software development life cycle and will eventually become a framework for future Rational products.*

What is Rational doing to meet corporate demand for tools that can link disparate development tools and include portfolio management capabilities? There was an era for a while focusing around client/server computing, around individual developer productivity. Those are necessary conditions, but at the end of the day, they are not sufficient conditions.

If you start looking at the pressures on software development in terms of compliance and flexibility and its ability to integrate and be managed as a business process, in many organizations you find that it's a mess. Some people are just trying to survive. They are failing audits in financial organizations because they can't show that the requirements that came in from the business analysts were traced and documented all the way through the development to deployment or running of code. When you multiply those problems with a development team that is geographically distributed, those problems are even more intense.

We have been trying to revamp our product portfolio to strengthen it along the lines of governance, geographically distributed development and compliance so it is auditable. Then developers don't have to worry about that. They can let the tools deal with it.

What types of changes have you made to address these issues? We introduced a bunch of enhancements to things like RequisitePro [a requirements management tool] for things like compliance. We now have a workflow and a process that manages quality, as opposed to just doing the automation of testing. We're using our products together and continuing to put in integration across our portfolio and our existing capabilities so they work together for end-to-end life-cycle traceability and ease of development. The traceability allows you to draw a path across the entire development life cycle that satisfies audits.

What enhancements will you be making to your products? We have a demonstration project, called Jazz, that has been under way for 18 months, built by the same team that built Eclipse. It is focused on an integrated view of the life cycle of software and system development. It shows what you could do if you had a fully integrated life cycle. You could flow information from any particular change that you make in requirements or code construction or test cases. Using an underlying common view of development metadata, whenever a change is made, it flows through the entire life cycle, and anyone who needs to be notified is notified instantly. We're using that project as a design pattern for the evolution of our existing architecture.

When do you expect the Jazz capabilities to be added to other products? It will start to manifest benefits next year. We're trying to take the architecture we have built around a coherent view of collaboration and Web-centric clients and use that to unify all of our Web interfaces to all of our products. The Rational ClearCase [version control tool] and ClearQuest [defect-tracking tool] Web interfaces are being unified using this architecture.

The next time that you see us release [a version of Rational's suite of tools for development teams], we will be talking about how our experience with Jazz morphs even more capabilities in our products and the way we interface to construction and modeling tools. Every time we release something, we will talk about how we are moving closer to that [Jazz] vision. ◗

Salesforce.com, NetSuite Unveil Online Ad Services

BY MARC L. SONGINI

Salesforce.com Inc. last week added an online advertising management service to its hosted CRM system. San Francisco-based Salesforce.com says the new service can help customers more easily manage marketing campaigns on Google Inc.'s search engine.

The new Salesforce for Google AdWords CRM service tightly integrates the processes connected with creating, managing and benchmarking marketing campaigns on the Google search engine, said Kendall Collins, Salesforce.com's vice president of product marketing.

All of the processes can now be handled directly through the Salesforce.com interface, which is linked to Google's Web site, Collins said.

In addition, Collins said the new service lets customers purchase keywords and create advertising text through the Salesforce.com interface. It then correlates sales leads with ad clicks. A customer can use the service to measure which advertisements and keywords are delivering results, allowing for more intelligent spending of advertising dollars, Collins said.

"Companies are spending money on advertising and getting their name out there, but they're not sure it turns into actual revenue," he explained. "That's the disconnect we're trying to solve."

SERVICES OFFERED

Salesforce.com

- Includes links to Google Web site
- Lets users buy keywords and ads through Salesforce.com interface
- Free 30-day trial
- Priced at $300 per month
- Final version will ship by year's end

Salesforce for Google AdWords is offered through Salesforce.com's AppExchange application exchange service. Salesforce.com obtained the technology through its purchase earlier this month of Kieden Corp., a software developer that had used the AppExchange Web site to distribute the product.

Salesforce.com for Google AdWords is available now for a free 30-day trial. A final version of the product, priced at $300 per organization, will ship by the end of this year, Salesforce.com said.

Demandbase Inc., a provider of lead-creation applications and services in Sausalito, Calif., is a user of the Salesforce.com CRM service. The company had used the Kieden AdWords service for three months before Kieden was purchased by Salesforce.com.

SERVICES OFFERED

NetSuite

- Service works with both NetSuite ERP and CRM hosted systems
- Available as a free add-on
- Works with Google and Yahoo search engines
- Integrated with NetSuite order management system

Demandbase Vice President Kirk Crenshaw said the ability to use Salesforce.com's interface is an important update for his firm. He noted that prior to installing the service, Demandbase couldn't locate the origin of search leads on Google, what the potential customer had been searching for, or what ads or keywords were big drivers of revenue.

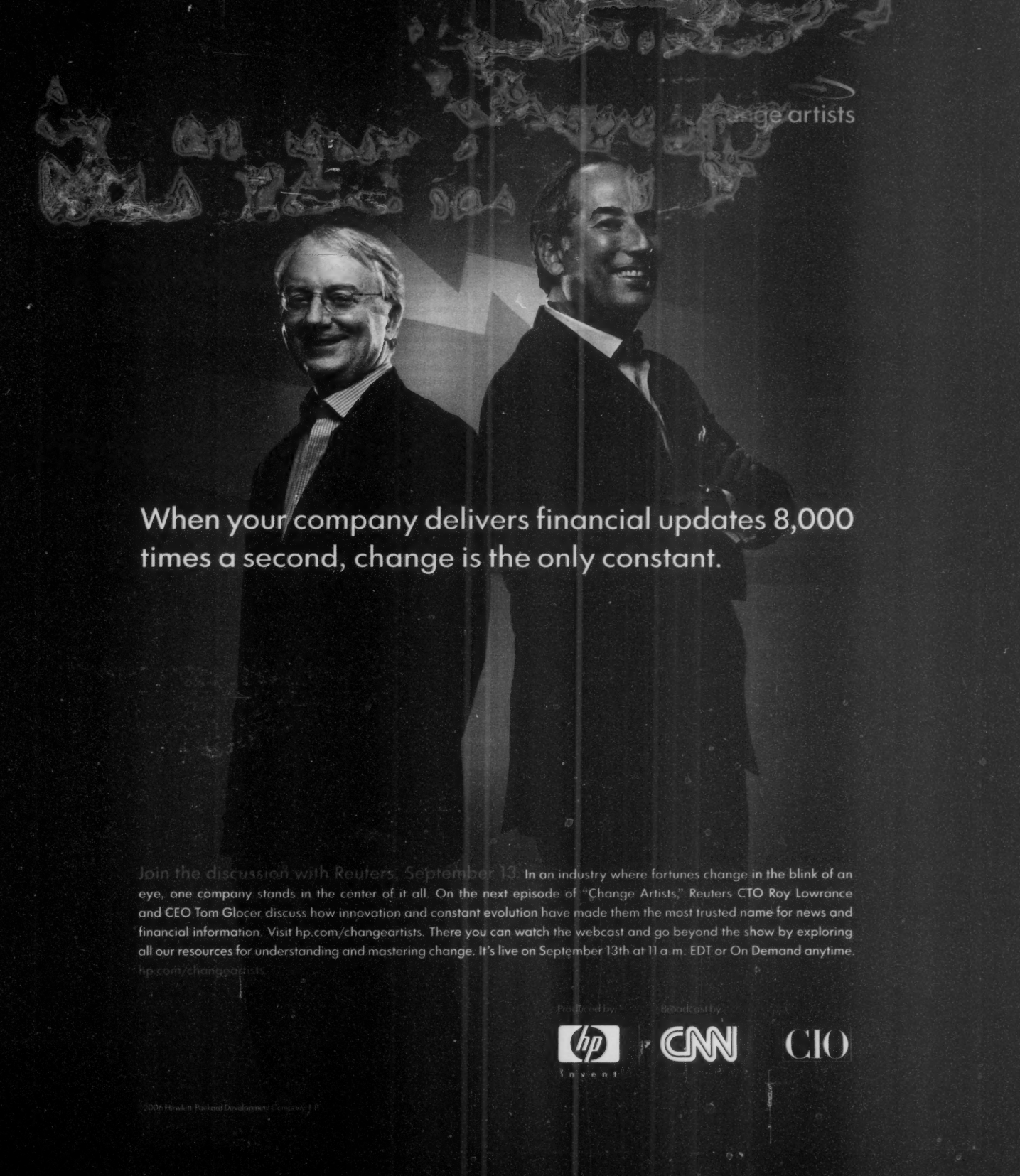
The company can now manage what it spends on Google more effectively and can focus its efforts on the more successful programs, Crenshaw said.

Meanwhile, NetSuite Inc., a San Mateo, Calif.-based provider of hosted CRM and ERP systems, last week announced a new offering to manage both Google- and Yahoo-based advertising campaigns.

NetSuite CEO Zach Nelson said the service is available to users of his firm's hosted CRM and ERP systems. Offered without charge as an add-on to those systems, the NetSuite Keyword Marketing Module can track clicks up to the close of a sale.

Rebecca Wetteman, an analyst at Wellesley, Mass.-based Nucleus Research Inc., said offerings like those from Salesforce.com and NetSuite can provide a big boost to Google advertisers, who have long had little data to prove the cost-effectiveness of their investments. The new systems can provide companies with statistics showing whether their investments work, she said.

In a recent research note, Wetteman pointed out that the tools could hurt Google in negotiations with potential customers. ◗


ge artists
When your company delivers financial updates 8,000 times a second, change is the only constant.
Join the discussion with Reuters, September 13. In an industry where fortunes change in the blink of an eye, one company stands in the center of it all. On the next episode of "Change Artists," Reuters CTO Roy Lowrance and CEO Tom Glocer discuss how innovation and constant evolution have made them the most trusted name for news and financial information. Visit hp.com/changeartists. There you can watch the webcast and go beyond the show by exploring all our resources for understanding and mastering change. It's live on September 13th at 11 a.m. EDT or On Demand anytime.
hp.com/changeartists
Produced by
Broadcast by
hp
invent
CNN
CIO
2006 Hewlett-Packard Development Company, L.P.

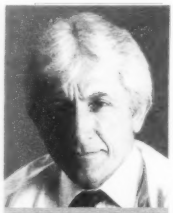
DON TENNANT

Takin' Care of Business

YOU'RE probably as disinclined as I am to admit it, but chances are you remember the Bachman-Turner Overdrive song "Takin' Care of Business." In fact, you probably remember the song by BTO so well that you won't be able to get it out of your head when you're finished reading this column.

I know what you're thinking: "Thanks a bunch."

I couldn't resist mentioning it, though — probably because I'm so entertained by the fact that business technology optimization, the IT discipline otherwise known as BTO, is all about aligning IT with the business. And the idea behind BTO is to ensure that IT is working on the right priorities and delivering maximum value to the company. In other words: takin' care of business.



DON TENNANT is editor in chief of *Computerworld*. Contact him at **don_tennant@computerworld.com**.

At *Computerworld*'s IT Executive Summit on Business Technology Optimization in Atlanta last week, the presenters focused largely on just how that caretaking can best be accomplished, and they did so compellingly. But it was Karen Painter, senior vice president of enterprise applications at Turner Broadcasting System, who really nailed it on the most fundamental level.

What's required, Painter said, is establishing a "culture of accountability" inside companies. And she spoke passionately about exactly what that means. "It's not just doing what we said we were going to do," she said. "It's doing the things that we *should* do." At Turner Broadcasting, if that means she has to take ownership of those things, she will, Painter said.

Core to that business approach is to "remove *blame*, *justification* and *denial* from your vocabulary," Painter said, adding that holding oneself accountable increases the likelihood that others will follow. She stressed the importance of organizational accountability as well. That's why she refuses to be "complicit" in any group's failure to hold itself accountable.

It fascinates me that a senior IT professional who has lived and breathed application development for 20 years would focus so sharply on the human element of the BTO discussion rather than on the technology. BTO products and services constitute a multibillion-dollar market, and BTO frameworks like ITIL are all the rage. What I took away from Painter's presentation was that none of it matters if there isn't a foundation of accountability to build upon.

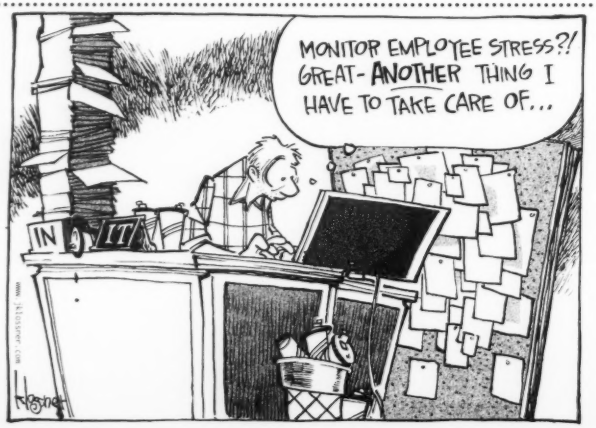
I found it equally fascinating — and especially admirable — that another presenter at the summit, Mercury Interactive CIO Cecilia Claudio, echoed much of what Painter had to say. It was admirable when you consider that Mercury's lifeblood (and the reason it was recently acquired by Hewlett-Packard) is BTO software and services. Yet Claudio, too, spoke eloquently about the human element and about the importance of IT and the business being "jointly accountable." "Finger-pointing," she said, "cannot exist."

Indeed, if there's a recurring theme in the gatherings of IT professionals I've attended in the past year or so, it's that what makes or breaks their IT initiatives isn't nearly as much about technology as it is about people. That's not an epiphany — clearly the human element has always been recognized as core to any IT endeavor. There just seems to be more of a recognition now than there's ever been in the past that the interaction of people is a lot more important than the interaction of systems.

As this recognition grows even more pervasive, the value that IT delivers will grow at a rate that exceeds anything we've experienced so far. BTO said it all in the song "You Ain't Seen Nothing Yet."

That one will be in your head for a while, too. Don't mention it.

Don Tennant



DAVID MOSCHELLA

IT's Tale Of Two Personalities

RECENT COLUMNS in *Computerworld* and on *Computerworld.com* by Don Tennant and Ira Winkler, along with some excellent reader letters, have explored the long-held stereotype that many IT professionals lack sufficient people skills. Normally, I would think that these exchanges covered the subject sufficiently and that I should write about something else. But this particular topic has such great currency within our client base that I couldn't resist the temptation to weigh in.

This issue plays out on two levels. When companies search for a new CIO, they usually seek people with CXO-class skills. This means people who put the business first and think and act like any other member of the executive team. Unfortunately, while many CIOs fit this profile, it's generally accepted within the recruitment industry that there just aren't enough people like this within IT. This helps explain why as many as half of CIOs these days don't have a background primarily in IT. Many companies are more comfortable giving the job to someone who has already proved himself as part of the executive team.

DAVID MOSCHELLA is global research director at the Leading Edge Forum, a Computer Sciences Corp. company. Contact him at **dmoschella@earthlink.net**.

But the issue of executive talent shortages pales when compared with the need to get the overall IT department thinking more in business terms. Companies are looking for IT people who have consulting, negotiating and industry-specific skills that many IT pros simply aren't interested in. Our CIO clients tell us they're concerned that their staffs are still more comfortable toiling in the basement than getting out and discovering what the business really needs. One CIO client ruefully noted that one of the reasons his staffers like open-source software so much is that they can tin-

ker with everything, even the drivers.

The reasons for these behavioral and cultural gaps go beyond the pros and cons of being an introvert or extrovert. Once someone is trained in IT, perhaps the biggest career decision he makes is whether to work for an IT vendor or customer. Since there is little movement between these two worlds, the decision often determines one's career trajectory. My view is that those who choose the vendor path are (and increasingly become) very different from those who work on the customer side.

Consider another stereotype, the Silicon Valley animal — entrepreneurial, self-promoting, job-switching, hustling, always selling something and looking out for No. 1. This stereotype is just as true and just as false as that of the socially inept IT professional, and all of us who deal with IT vendors know that the stereotype exists for a reason. Aggressive IT workers are attracted to the vendor world and then are increasingly shaped to that mold. It's one reason why many people leave the valley. They don't always like what they see and who they are becoming.

While most IT workers on both the vendor and customer sides are well adjusted, we need to recognize that these two environments tend to be both self-selecting and self-reinforcing. The more entrepreneurial types tend to choose the vendor path, which makes them more vendor-like over time. Those less interested in buying and selling are more likely to work on the customer side, which can easily make them less business-oriented over time. While there is no easy answer to these dilemmas, being aware is certainly the necessary place to start. Each side can learn a great deal from the other. ▸

JOHN D. HALAMKA

A Cure for 802.11 Confusion

EVERY WEEK, some industry publication calls me to discuss the latest wireless acronym. Questions abound, such as: Are you implementing 802.1x on your 802.11a/b/g networks? How about EAP-FAST supplicants? IPsec VPN over wireless? TKIP, MIC, LEAP? How do you feel about the future of 802.11n, w, x, y, z?

It's dizzying.

Users want something simple — just to be able to open a laptop and be connected to the Internet. They can do it in a hotel, so why is the corporate enterprise any different?

As CIO of Harvard Medical School, I need to support several types of wireless use, ranging from insecure wireless Internet access for visitors with possibly unmanaged, virus-infected laptops to highly secure wireless access for trusted users of corporate managed devices.

With 4,000 PCs, 4,000 Macintoshes and 1,000 Linux-variant machines, what can a CIO do to navigate the 802.11 ABC's and arrive at a sustainable and supportable approach?

After months of experimentation, we found a way to meet the needs of our users, provide reasonable security and keep help desk calls to a minimum.

Before I discuss our approach, I should comment on what did not work.

Although supplicants worked fine on PCs, support for Macs and Linux machines was a challenge.

Configuring complex wireless protocols such as TKIP, MIC or EAP-FAST on Red Hat Enterprise Linux required expert engineers.

JOHN D. HALAMKA is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, CIO of the Harvard Clinical Research Institute and a practicing emergency physician. Contact him at **jhalamka@caregroup.harvard.edu**.

Using IPsec virtual private networks was very invasive to the operating system and tended to cause errors, instability and calls to the help desk.

After ruling out these technologies, we implemented something very simple.

For visiting users, we created an 802.11a/b/g service set identifier called "Public," which sits outside the firewall and offers access only to the public Internet. Any laptop — PC, Mac or Linux — can pick up this SSID without any configuration. Just open the lid, and you're on the Internet. Users do get an "appropriate uses" page when they first open their Web browsers that discourages copyright violations, but no log-in or configuration is required.

Once on the Internet, any user on any operating system can access secure resources behind the firewall via a Secure Sockets Layer VPN. The SSL VPN (Juniper) works in any browser, on PCs, Macs and Linux-based laptops, with identical features and no client or support problems. Today I'm e-mailing this article using Microsoft Exchange via SSL VPN over wireless from an Intel-based Mac.

For our power users who are willing to accept a minimal amount of configuration to get behind the firewall without an SSL VPN, we created an SSID called "Private" that uses WPA. For Mac users, no configuration is necessary — just open the laptop lid and sign into the network using enterprise (Active Directory) credentials. For PC users, a small amount of configuration is necessary, depending on the driver used for wireless (Windows, Intel, IBM, etc.). For Linux, a custom driver must be downloaded, which makes this approach less than perfect, but most Linux users are happy with an SSL VPN, so calls to the help desk are limited.

The bottom line: Two SSIDs — one with a simple appropriate-uses page, and one with WPA along with an SSL VPN — provide choices that work everywhere for everyone.

While the U.S. economy is based on choice, in the world of wireless, there is too much of it. I'm sure that by next week it will all be obsolete, but for the moment, we're cured of wireless confusion. I hope our experience eases the path to wireless for others. Our next challenge will be WiMax vs. EV-DO vs. EDGE. ▸

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site: **www.computerworld.com/columns**

READERS' LETTERS

Introverts Speak Up About Life in IT

AS WITH all professions, the social skills of IT professionals run the gamut. (It's just that we're a lot smarter than most.) However, the tribal antagonisms of "geeks" vs. "suits" inhibit communication and cripple companies. They need to go, as Don Tennant elegantly pointed out in his Aug. 7 editorial, "The Stigma Debate."

Dick Lincoln
Skillman, N.J.

LIKE RACISM, sexism, ageism, or any other "-ism" you can think of, the techie-as-social-pariah myth generalizes the behavior of a few to represent the whole. Are there socially inept programmers and DBAs? Sure there are! You can be certain there are also spinal care doctors, patent attorneys and auto mechanics who couldn't carry on a meaningful conversation to save their lives.

I'm surprised that most of the letters Tennant received were in favor of the stereotyping. I know it's hard for some people to believe, but I swear it's true: Every person has a unique personality.

Jason DePriest
Security analyst, Memphis

IRA WINKLER is right on the mark ["So, What's Wrong With Being an Introvert?" *Computerworld.com*, Aug. 8]. I'm a top-notch programmer, and I dread having to do help desk duty, because I'm not interested in social interaction at work; I'm interested in programming. I cannot put in print how strongly I detest having to deal with end users' computer-related angst.

The day I never have to answer another help desk call will be the greatest day of my life. And the last thing I would ever want to be is a manager of other programmers. We're unmanageable! Just leave us alone and let us program.

Geoffrey J. Rarick
Database/network administrator, Thoracic & Cardiovascular Institute, Lansing, Mich., grarick@tciheart.com

I WAS GLAD to see Winkler defending the honor of introverts (I'm a Myers-Briggs INTJ). However, relying on Larry Summers to do so is a little iffy. I was a scientist before I was a programmer, and the level of thoughtless discrimination against women was breathtaking. Every woman who spent time in academic sciences could tell you hours of stories about this, which is why we all got incensed when Larry Summers bloviated about why women aren't in science. (By the way, the percentage of women in various scientific fields varies by more than an order of magnitude by field and by country. That's hardly a hallmark of a biological difference.)

Yes, let's support the introverts. We're the ones who produce the cool apps, even if you wouldn't want us as your dynamic spokespeople.

Rachel Pildis
Development consultant, Chicago, rachel@pildis.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

DON TENNANT

Takin' Care of Business

YOU'RE probably as disinclined as I am to admit it, but chances are you remember the Bachman-Turner Overdrive song "Takin' Care of Business." In fact, you probably remember the song by BTO so well that you won't be able to get it out of your head when you're finished reading this column.

DON TENNANT is editor in chief of Computerworld. Contact him at don_tennant@computerworld.com.

I know what you're thinking: "Thanks a bunch."

I couldn't resist mentioning it, though — probably because I'm so entertained by the fact that business technology optimization, the IT discipline otherwise known as BTO, is all about aligning IT with the business. And the idea behind BTO is to ensure that IT is working on the right priorities and delivering maximum value to the company. In other words: takin' care of business.

At *Computerworld*'s IT Executive Summit on Business Technology Optimization in Atlanta last week, the presenters focused largely on just how that caretaking can best be accomplished, and they did so compellingly. But it was Karen Painter, senior vice president of enterprise applications at Turner Broadcasting System, who really nailed it on the most fundamental level.

What's required, Painter said, is establishing a "culture of accountability" inside companies. And she spoke passionately about exactly what that means. "It's not just doing what we said we were going to do," she said. "It's doing the things that we *should* do." At Turner Broadcasting, if that means she has to take ownership of those things, she will, Painter said.

Core to that business approach is to "remove *blame*, *justification* and *denial* from your vocabulary," Painter said, adding that holding oneself accountable increases the likelihood that others will follow. She stressed the importance of organizational accountability as well. That's why she refuses to be "complicit" in any group's failure to hold itself accountable.

It fascinates me that a senior IT professional who has lived and breathed application development for 20 years would focus so sharply on the human element of the BTO discussion rather than on the technology. BTO products and services constitute a multibillion-dollar market, and BTO frameworks like ITIL are all the rage. What I took away from Painter's presentation was that none of it matters if there isn't a foundation of accountability to build upon.

I found it equally fascinating — and especially admirable — that another presenter at the summit, Mercury Interactive CIO Cecilia Claudio, echoed much of what Painter had to say. It was admirable when you consider that Mercury's lifeblood (and the reason it was recently acquired by Hewlett-Packard) is BTO software and services. Yet Claudio, too, spoke eloquently about the human element and about the importance of IT and the business being "jointly accountable." "Finger-pointing," she said, "cannot exist."

Indeed, if there's a recurring theme in the gatherings of IT professionals I've attended in the past year or so, it's that what makes or breaks their IT initiatives isn't nearly as much about technology as it is about people. That's not an epiphany — clearly the human element has always been recognized as core to any IT endeavor. There just seems to be more of a recognition now than there's ever been in the past that the interaction of people is a lot more important than the interaction of systems.

As this recognition grows even more pervasive, the value that IT delivers will grow at a rate that exceeds anything we've experienced so far. BTO said it all in the song "You Ain't Seen Nothing Yet."

That one will be in your head for a while, too. Don't mention it.

Don Tennant

DAVID MOSCHELLA

IT's Tale Of Two Personalities

RECENT COLUMNS in *Computerworld* and on *Computerworld.com* by Don Tennant and Ira Winkler, along with some excellent reader letters, have explored the long-held stereotype that many IT professionals lack sufficient people skills. Normally, I would think that these exchanges covered the subject sufficiently and that I should write about something else. But this particular topic has such great currency within our client base that I couldn't resist the temptation to weigh in.

This issue plays out on two levels. When companies search for a new CIO, they usually seek people with CXO-class skills. This means people who put the business first and think and act like any other member of the executive team. Unfortunately, while many CIOs fit this profile, it's generally accepted within the recruitment industry that there just aren't enough people like this within IT. This helps explain why as many as half of CIOs these days don't have a background primarily in IT. Many companies are more comfortable giving the job to someone who has already proved himself as part of the executive team.

DAVID MOSCHELLA is global research director at the Leading Edge Forum, a Computer Sciences Corp. company. Contact him at dmoschella@earthlink.net.

But the issue of executive talent shortages pales when compared with the need to get the overall IT department thinking more in business terms. Companies are looking for IT people who have consulting, negotiating and industry-specific skills that many IT pros simply aren't interested in. Our CIO clients tell us they're concerned that their staffs are still more comfortable toiling in the basement than getting out and discovering what the business really needs. One CIO client ruefully noted that one of the reasons his staffers like open-source software so much is that they can tin-

ker with everything, even the drivers.

The reasons for these behavioral and cultural gaps go beyond the pros and cons of being an introvert or extrovert. Once someone is trained in IT, perhaps the biggest career decision he makes is whether to work for an IT vendor or customer. Since there is little movement between these two worlds, the decision often determines one's career trajectory. My view is that those who choose the vendor path are (and increasingly become) very different from those who work on the customer side.

Consider another stereotype, the Silicon Valley animal — entrepreneurial, self-promoting, job-switching, hustling, always selling something and looking out for No. 1. This stereotype is just as true and just as false as that of the socially inept IT professional, and all of us who deal with IT vendors know that the stereotype exists for a reason. Aggressive IT workers are attracted to the vendor world and then are increasingly shaped to that mold. It's one reason why many people leave the valley. They don't always like what they see and who they are becoming.

While most IT workers on both the vendor and customer sides are well adjusted, we need to recognize that these two environments tend to be both self-selecting and self-reinforcing. The more entrepreneurial types tend to choose the vendor path, which makes them more vendor-like over time. Those less interested in buying and selling are more likely to work on the customer side, which can easily make them less business-oriented over time. While there is no easy answer to these dilemmas, being aware is certainly the necessary place to start. Each side can learn a great deal from the other.

JOHN D. HALAMKA

A Cure for 802.11 Confusion

EVERY WEEK, some industry publication calls me to discuss the latest wireless acronym. Questions abound, such as: Are you implementing 802.1x on your 802.11a/b/g networks? How about EAP-FAST supplicants? IPsec VPN over wireless? TKIP, MIC, LEAP? How do you feel about the future of 802.11n, w, x, y, z?

It's dizzying.

Users want something simple — just to be able to open a laptop and be connected to the Internet. They can do it in a hotel, so why is the corporate enterprise any different?

As CIO of Harvard Medical School, I need to support several types of wireless use, ranging from insecure wireless Internet access for visitors with possibly unmanaged, virus-infected laptops to highly secure wireless access for trusted users of corporate managed devices.

With 4,000 PCs, 4,000 Macintoshes and 1,000 Linux-variant machines, what can a CIO do to navigate the 802.11 ABC's and arrive at a sustainable and supportable approach?

After months of experimentation, we found a way to meet the needs of our users, provide reasonable security and keep help desk calls to a minimum.

Before I discuss our approach, I should comment on what did not work.

Although supplicants worked fine on PCs, support for Macs and Linux machines was a challenge.

Configuring complex wireless protocols such as TKIP, MIC or EAP-FAST on Red Hat Enterprise Linux required expert engineers.

JOHN D. HALAMKA is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, CIO of the Harvard Clinical Research Institute and a practicing emergency physician. Contact him at **jhalamka@caregroup.harvard.edu**.

Using IPsec virtual private networks was very invasive to the operating system and tended to cause errors, instability and calls to the help desk.

After ruling out these technologies, we implemented something very simple.

For visiting users, we created an 802.11a/b/g service set identifier called "Public," which sits outside the firewall and offers access only to the public Internet. Any laptop — PC, Mac or Linux — can pick up this SSID without any configuration. Just open the lid, and you're on the Internet. Users do get an "appropriate uses" page when they first open their Web browsers that discourages copyright violations, but no log-in or configuration is required.

Once on the Internet, any user on any operating system can access secure resources behind the firewall via a Secure Sockets Layer VPN. The SSL VPN (Juniper) works in any browser, on PCs, Macs and Linux-based laptops, with identical features and no client or support problems. Today I'm e-mailing this article using Microsoft Exchange via SSL VPN over wireless from an Intel-based Mac.

For our power users who are willing to accept a minimal amount of configuration to get behind the firewall without an SSL VPN, we created an SSID called "Private" that uses WPA. For Mac users, no configuration is necessary — just open the laptop lid and sign into the network using enterprise (Active Directory) credentials. For PC users, a small amount of configuration is necessary, depending on the driver used for wireless (Windows, Intel, IBM, etc.). For Linux, a custom driver must be downloaded, which makes this approach less than perfect, but most Linux users are happy with an SSL VPN, so calls to the help desk are limited.

The bottom line: Two SSIDs — one with a simple appropriate-uses page, and one with WPA along with an SSL VPN — provide choices that work everywhere for everyone.

While the U.S. economy is based on choice, in the world of wireless, there is too much of it. I'm sure that by next week it will all be obsolete, but for the moment, we're cured of wireless confusion. I hope our experience eases the path to wireless for others. Our next challenge will be WiMax vs. EV-DO vs. EDGE.

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site:
www.computerworld.com/columns

READERS' LETTERS

Introverts Speak Up About Life in IT

AS WITH all professions, the social skills of IT professionals run the gamut. (It's just that we're a lot smarter than most.) However, the tribal antagonisms of "geeks" vs. "suits" inhibit communication and cripple companies. They need to go, as Don Tennant elegantly pointed out in his Aug. 7 editorial, "The Stigma Debate."

Dick Lincoln
Skillman, N.J.

LIKE RACISM, sexism, ageism, or any other "-ism" you can think of, the techie-as-social-pariah myth generalizes the behavior of a few to represent the whole. Are there socially inept programmers and DBAs? Sure there are! You can be certain there are also spinal care doctors, patent attorneys and auto mechanics who couldn't carry on a meaningful conversation to save their lives.

I'm surprised that most of the letters Tennant received were in favor of the stereotyping. I know it's hard for some people to believe, but I swear it's true: Every person has a unique personality.

Jason DePriest
Security analyst, Memphis

IRA WINKLER is right on the mark ["So, What's Wrong With Being an Introvert?" *Computerworld.com*, Aug. 8]. I'm a top-notch programmer, and I dread having to do help desk duty, because I'm not interested in social interaction at work; I'm interested in programming. I cannot put in print how strongly I detest having to deal with end users' computer-related angst.

The day I never have to answer another help desk call will be the greatest day of my life. And the last thing I would ever want to be is a manager of other programmers. We're unmanageable! Just leave us alone and let us program.

Geoffrey J. Rarick
Database/network administrator, Thoracic & Cardiovascular Institute, Lansing, Mich., grarick@tciheart.com

I WAS GLAD to see Winkler defending the honor of introverts (I'm a Myers-Briggs INTJ). However, relying on Larry Summers to do so is a little iffy. I was a scientist before I was a programmer, and the level of thoughtless discrimination against women was breathtaking. Every woman who spent time in academic sciences could tell you hours of stories about this, which is why we all got incensed when Larry Summers bloviated about why women aren't in science. (By the way, the percentage of women in various scientific fields varies by more than an order of magnitude by field and by country. That's hardly a hallmark of a biological difference.)

Yes, let's support the introverts. We're the ones who produce the cool apps, even if you wouldn't want us as your dynamic spokespeople.

Rachel Pildis
Development consultant, Chicago, rachel@pildis.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

How the show always goes on. To a packed house.

Whether it is "Madama Butterfly" or Michael Bublé, every ticket at Sydney Opera House is a hot one. That's why they chose HP Integrity servers with Intel® Itanium® 2 processors. Now twelve times as many customers can access the ticketing system simultaneously, and downtime is a distant memory. Norman Gillespie, CEO says, "Maintaining our reputation is crucial. HP Integrity Itanium-based systems help ensure our customer experience is virtually flawless." itanium-integrity.com

ITANIUM + INTEGRITY. ON AND ON AND ON.

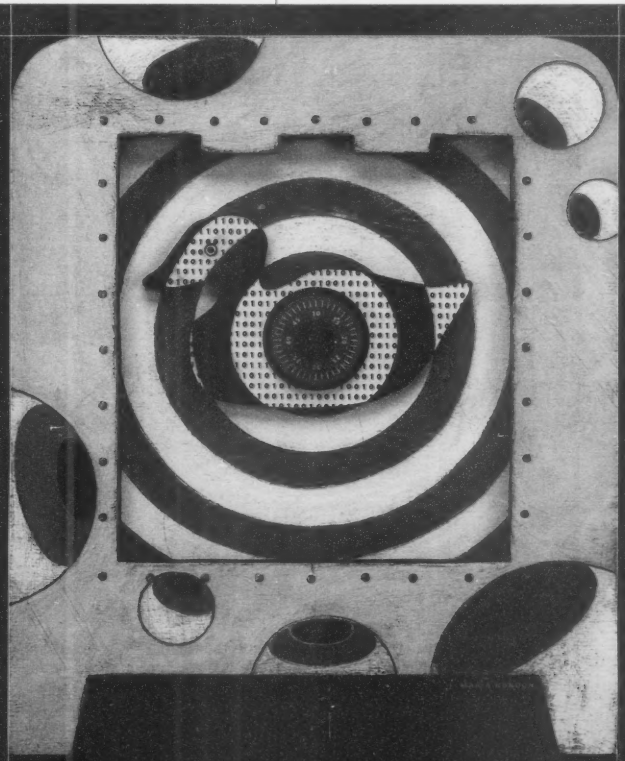
intel

hp invent

EMERGING TECHNOLOGIES
Flash Forward
Hybrid hard disks that integrate a flash memory cache could deliver faster, less power-hungry laptops, desktops and servers. **PAGE 26**

SECURITY MANAGER'S JOURNAL
Soaking It All Up at the Black Hat Conference
Mathias Thurman returns from the hacker confab and faces a possible malware attack. **PAGE 31**

QUICKSTUDY
Internet2
The next generation of the Internet will be faster, more collaborative and multimedia-friendly. **PAGE 30**



BUILDING UP

Database Defenses

Protecting the corporate database involves targeting at-risk data and implementing four key defenses.

BY ROBERT L. SCHEIER

CHIEF SECURITY OFFICER Barak Engel doesn't store many customer credit card numbers at San Francisco-based Loyalty Lab Inc., which runs customer loyalty programs for retailers. But he protects those numbers fiercely.

A vulnerability scanning and remediation service from Qualys Inc. scans Loyalty Lab's network perimeter for weaknesses, while two-factor authentication from RSA Security Inc. verifies its users' identities. Tripwire Enterprise from Tripwire Inc. audits changes to the company's environment for signs of misuse, Nessus software from Idealogica Inc. scans for vulnerabilities on servers, and SecureDB from nCipher PLC encrypts the data itself.

That's a lot of defense for less than a few hundred megabytes of credit card numbers. But customers, regulators and investors are requiring that companies do whatever it takes to protect "data at rest," whether that data is in a structured database, on a backup tape, on a storage-area network or in a spreadsheet on a notebook computer.

For Engel, one of the key drivers is the Payment Card Industry (PCI) data security standard. It specifies 12 requirements for all companies that accept credit cards, including encrypted transmission of cardholder data, periodic network scans, logical and physical access controls, and activity monitoring and logging. To meet such requirements, organizations must determine what sensitive data they own, where it is stored, how it is used and the likely attacks it faces. They must then defend it using tools such as access control and authentication systems, vulnerability scanners, data access monitors and encryption.

Know the Threat

Threats may come from disgruntled employees using legitimate access rights to prowl for data, forgetful users whose data-rich notebooks are stolen, and dishonest employees who sell information to the highest bidder. Even if you trust (or are) the database administrator, many regulations require a "separation of duties" that limits which information a database administrator can view.

Data at rest is information that is stored, even temporarily, as opposed to data in transit over a network. It most often refers to structured data, such as the rows and columns of a relational database, but it can also include unstructured data created by other applications, such as word processing, spreadsheet and e-mail programs.

Without an upfront information assessment, organizations often encrypt too little or too much data or fail to build defenses against the most likely threats, says Gartner Inc. analyst Rich Mogull. Some vulnerability scanning and database access tools can help customers find databases they didn't know they had, as well as track where sensitive data is kept and how it's being used. These tools make it easier to identify which information to protect and where encryption and decryption will be required.

Encrypting more data than necessary can cripple database or application performance, says Trent Henry, a senior analyst at Burton Group, a research firm in Midvale, Utah. It can also lead to disaster if you can't find the proper de-

Database Protection Vendors

Here's a sampling of vendors with tools designed to protect corporate databases. Although some vendors offer more than one product, most organizations will need to work with more than one vendor to create an in-depth defense that includes control and authentication, vulnerability scanning, data access monitoring and encryption.

Vendor	Product Name(s)	Product Types	Capabilities
www.appsecinc.com	AppDetective, AppRadar, dbEncrypt	Vulnerability scanning, database access monitoring, encryption	Scans databases for misconfigurations or security vulnerabilities; monitors real-time access to databases; provides software-based, column-level database encryption and key management.
www.cynsul.com	Insight Suite	Database access monitoring	Captures and normalizes log information from applications, operating systems and databases to provide reports on access by various user types.
www.rsa.com	To be announced	Encryption	Plans to add encryption to many products using technologies from its planned acquisition of RSA Security. Already offers protection for unstructured data.
www.guardium.com	SQL HealthGuard, SQL Audit Guard, SQL PolicyGuard	Vulnerability scanning, access control and auditing	Also offers PCI Accelerator for Database Compliance, which has predefined templates for PCI compliance.
www.ingrian.com	DataSecure	Encryption	Offers hardware-based cryptography, field-level encryption at the Web server, application server or database layer as well as centralized key management.
www.protegrity.com	Database Security and Compliance Solution	Software-based vulnerability scanning, access monitoring, auditing/analysis and reporting	Compares database settings to industry best practices to help ensure compliance.
www.lumigent.com	Audit DB	Database vulnerability scanning, access monitoring	Audits databases for users' access activity, identifies changes to the structure and permission levels and violations of access policies.
www.ncipher.com	KeepSecure: SecureApp, Secure DB, Secure FS	Encryption and key management	Software- and hardware-based encryption. Protects data in structured databases and identity management tools.
www.prodagency.com	Defiance Security Software Suite	Access monitoring, encryption	Provides policy-driven, software-based encryption, key management and access audits, and DBA separation of duties.
www.tizor.com	Mantra	Access monitoring for databases and file servers	Audits multiple databases, file servers and application servers from a network-based appliance; has templates for compliance with various regulations.
www.vaultus.com	KeepSecure	Software-based data access monitoring, audits and encryption of both structured and unstructured data	Centralized management console controls policies, separation of duties, reporting and auditing. Adapters integrate with databases, file systems and business applications.

cryption keys when you need the data. An information inventory also helps ensure that you are encrypting data at the most likely point of attack.

Defensive Tools

Many customers use a combination of four protective technologies, chosen to meet their specific needs and budgets. Access control and authentication products verify the identity of users and control which databases, applications and information they can access. Many of these functions are contained within commercial databases, says Mogull, and thus don't require third-party tools. Vulnerability scanners check databases (and sometimes servers) for well-known vulnerabilities, such as default or weak passwords or unnecessary services or processes that are running. They then produce audits or reports listing the results.

Database access monitoring tools track who accessed what data in which databases, when they accessed it and whether and how they changed it. The tools then alert security managers to suspicious behavior, such as a middle-of-the-night query for all customers' credit card numbers. Key features to look for, as with access control and authentication products, include the ability to create and enforce very granular identity and role-based access controls, as well as the ability to produce easy-to-understand audit reports. Some tools also generate reports geared to the requirements of specific regulations that focus on certain types of users, such as database administrators.

Ease of use and automation are key to customers such as David Furnas, CIO at Gila Regional Medical Center in Silver City, N.M. He says he's looking for data access monitoring software that will cut in half the 20 hours he spends each month trying to "filter out all the authorized, appropriate access" and correlate data from multiple monitoring tools in search of possible attacks.

The final category of tools encrypts data so it can't be used even if it is stolen. Encryption can be done fairly easily with a number of off-the-shelf products, but the real challenge is properly managing the keys needed to decrypt data when needed.

"When you start to talk about issues such as dual controls, split controls, rules about how do I rotate a key, how do I recover keys — all of those are the areas that require significant thought," says Engel. That's why he, like many other customers, buys separate encryption and/or key management products even though many databases now ship with native encryption capabilities.

Harvey Ewing, senior director of IT security at Carrollton, Texas-based Accor North America, which owns and operates about 12,000 hotel properties in the U.S., Canada and Mexico, chose RSA Key Management from RSA Security. He says it provides a single key management system across the company's various applications.

Application programming interfaces from RSA allow Accor developers to easily adapt applications to access decryption keys as they need them, says Ewing. Without such keys, legacy systems can crash if they're expecting, say, a nine-digit response to a query and instead receive encrypted characters.

Another shortcoming of native database encryption is that it can't hide sensitive data from database administrators, says Burton Group's Henry. That's changing, he says, with products such as Oracle Corp.'s Oracle Database Vault, an option for Oracle databases that allows customers to "substantially limit what the DBA can do," he says.

No Silver Bullet

Customers, analysts and vendors agree that a mix of technologies is required to meet the needs of each unique environment. In addition to encryption, Ewing uses SecureSphere application layer firewalls from Imperva Inc. to protect his Web and database servers, as well as vulnerability and penetration testing tools.

Customers rely largely on access control and database access monitoring tools to comply with the Sarbanes-Oxley Act, says Prat Moghe, founder and CEO of Tizor Systems Inc. in Maynard, Mass., but they are using encryption more often to comply with PCI.

Even with products that allow users to encrypt only specific database columns (such as those holding credit card numbers), administrators may still need to restructure some databases to make encryption feasible. If a customer's Social Security number is used as the "index" field that helps locate all other information about that customer, encrypting Social Security numbers could require decryption of that column for every query and thus cripple database performance. Another approach, says Jeff Montgomery, director of product marketing at Cambridge, England-based nCipher, is to encrypt all but the last four digits of the sensitive number.

Rather than modifying applications so they can decrypt data, says Mogull, companies can also merely encrypt the file or hard drive where the data is stored (to deflect attacks on the database) and use data access monitoring tools to watch for suspicious activity from within the applications.

Making the wrong choice about where, for example, to use encryption can waste a lot of money, risk a lot of data and make a lot of users unhappy. That's why it's so crucial to first understand the threats facing your data and only then begin building your defense.

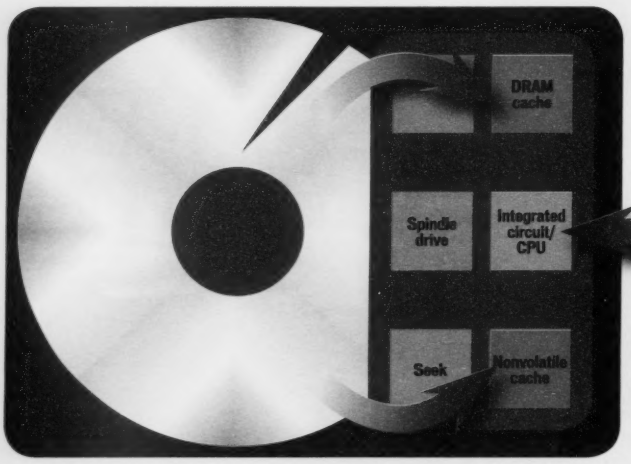
Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

_INFRASTRUCTURE LOG
_DAY 33: Our information is siloed. Unmanageable. People can't access the latest info to make decisions. Gil's resorted to giving everyone access to everything all at once.
_Monitors now outnumber humans 18 to 1.
_DAY 36: It's clear to me. We need an IBM Information On Demand middleware solution. Info will be liberated from the silos—available when we need it, whatever the format. Accurate and in context. Now we can make smarter decisions and deliver real business value.
_Access is a beautiful thing.
IBM
Information Management
See innovative IBM Info Management solutions in action:
IBM.COM/TAKEBACKCONTROL/INFO

IBM and the IBM logo are registered trademarks of International Business Machines Corporation in the United States and/or other countries. ©2006 IBM Corporation. All rights reserved.

Flash Forward

Windows Vista's support for flash-assisted hybrid hard drives could set the stage for faster, less power-hungry laptops, desktops and servers. **By Robert L. Mitchell**



SOURCE: MICROSOFT CORP.

HYBRID HARD DRIVES: What Are They?

A standard hard disk includes both magnetic storage platters and a small DRAM buffer. A hybrid drive adds flash memory, which is used as a nonvolatile data cache. Data in the cache can be retrieved faster and reduces use of the hard disk, cutting power consumption.

EMERGING TECHNOLOGIES

YOUR NEXT Windows laptop could run faster and last longer on a single battery charge, thanks to a new generation of hybrid hard disk drives and a feature in Windows Vista that leverages NAND flash memory as a disk cache. The feature, called ReadyDrive, could also reduce the incidence of hard disk crashes due to shocks — the most common hardware failure in notebooks — by decreasing the amount of time the disk needs to be spinning.

The technology will first appear in notebooks, but its potential is much broader, says Ruston Panabaker, an architect in Microsoft Corp.'s Windows hardware innovation group. "We fully expect to see it show up in desktops and perhaps even in specific server applications," he says.

ReadyDrive has spawned a new category of flash-assisted hard drives. Samsung Semiconductor Inc. and Seagate Technology LLC have each announced hybrid drives that integrate a 1.5-in. magnetic hard disk with up to 256MB of onboard flash. Both are expected to be available early next year. A rival technology from Intel Corp., code-named Robson, places the cache on the motherboard along with a controller chip. It will launch with Intel's Santa Rosa notebook platforms in the first quarter of 2007.

Improvements in the performance of flash chips and plummeting prices have made the new hardware designs viable. "The interface to flash chips has been doubling in read and write performance every single year," says Panabaker.

Research firm IDC predicted that flash prices would drop by 55% this year. Market prices recently hit $17.50 per gigabyte, which is already less than projected, and the downward trend is expected to continue (see chart, next page).

Because disk I/O speeds haven't kept up with CPU horsepower, it was just a matter of time before storage vendors turned to flash. "Vista was certainly the catalyst," says IDC analyst John Rydning, but the use of hybrid drives could certainly expand beyond Windows systems.

A related Vista feature, ReadyBoost, is a read cache that allows Windows to cache memory pages that won't fit into main memory on a USB flash drive. Because the device could be removed at any time, however, unique data can't be stored on it, and data is encrypted for security reasons.

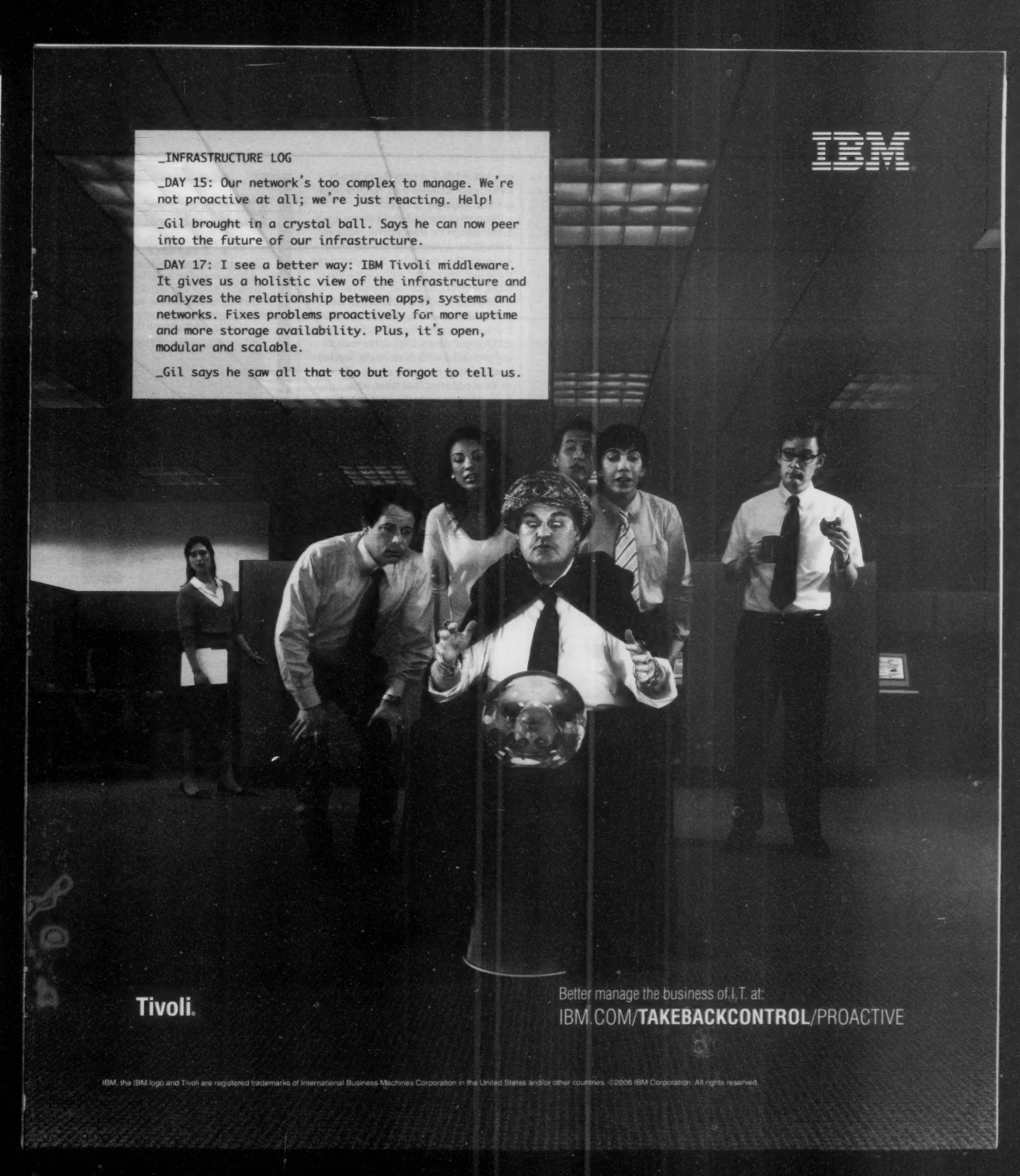
> "Vista was certainly the catalyst [for hybrid disks]."
>
> JOHN RYDNING, IDC ANALYST

"The final solution is ReadyDrive," a write cache that can cache portions of the operating system to facilitate faster boot-up and resume times, says Panabaker. "I would expect to see a 30% boot-time savings [using ReadyDrive]," he says.

During normal operations, data retrieved from the cache will be transferred two to three times as fast as from disk, says Panabaker. Samsung claims that the cache in its hybrid drive is 50 times faster than disk.

Not all applications will benefit equally from hybrid disks, however. The biggest performance improvement comes from faster seek times — the time it takes to locate data on disk. Those latencies, more than transfer rates, tend to produce a bottleneck. Therefore, some applications that read sequential strings of data, such as video, won't benefit as much.

Continued on page 28


_INFRASTRUCTURE LOG
_DAY 15: Our network's too complex to manage. We're not proactive at all; we're just reacting. Help!
_Gil brought in a crystal ball. Says he can now peer into the future of our infrastructure.
_DAY 17: I see a better way: IBM Tivoli middleware. It gives us a holistic view of the infrastructure and analyzes the relationship between apps, systems and networks. Fixes problems proactively for more uptime and more storage availability. Plus, it's open, modular and scalable.
_Gil says he saw all that too but forgot to tell us.
IBM
Tivoli.
Better manage the business of I.T. at:
IBM.COM/TAKEBACKCONTROL/PROACTIVE
IBM, the IBM logo and Tivoli are registered trademarks of International Business Machines Corporation in the United States and/or other countries. ©2006 IBM Corporation. All rights reserved.

SAMSUNG'S SOLID-STATE DISK DRIVE does away with a magnetic disk entirely in favor of flash memory chips. Samsung has announced a notebook computer that will use the device.

SOLID-STATE DISK:

Soul of The New Machines

FALLING PRICES for non-volatile flash memory have prompted some notebook manufacturers to go beyond hybrid disks and announce systems that replace the entire hard disk with a solid-state disk (SSD). In June, Samsung Electronics Co. introduced two notebooks for the Korean market – the Samsung Q1 and Q30 – that use a 32GB flash-based SSD that looks like a standard 1.5-in. ATA hard disk drive. In July, Sony Corp. launched the Vaio UX90 micronotebook, which includes a 16GB SSD, for sale in Japan and China.

Compared with units with hard drives, SSD-outfitted notebooks boot up and run faster, are quieter and use less power. Samsung claims that its units will boot up 50% faster. But they aren't cheap. Sony's UX90, which sells for $1,805, costs $343 more than a unit with a 30GB hard disk. The Samsung notebooks start at $2,430. At current prices, 32GB of flash might add $700 or more to the price of a notebook, says IDC analyst John Rydning.

The price of flash, at about $17.50 per gigabyte, has already dropped below IDC's predictions. However, that pales in comparison to disk drives, which cost as little as 65 cents per gigabyte. Disk drives also enjoy economies of scale – their cost per gigabyte decreases as capacity increases. In contrast, flash pricing tends to be linear. The crossover point for SSD versus traditional hard drives is 10GB, says IDC analyst Dave Reinsel. At capacities above that, hard drives are cheaper.

Today, flash SSDs make the most sense in rugged notebooks for military or industrial use. That's the case at NStar. "The hybrid disk-drive technology is somewhat attractive to us, but I believe that the flash-only drives will be a much better model for us in the future when the pricing of high-capacity flash gets more into the range of commodity pricing," says Jack Weilandt, the energy firm's chief technologist.

Costs will have to come down further and SSD capacity will need to expand before flash SSDs are viable in broader applications, says Rydning. He notes that while the disk footprint for Windows XP is 1.5GB, Vista is expected to come in at between 5GB and 15GB. "That eats up a pretty big chunk of the solid-state disk," he says.

Weilandt is less worried. "For many applications, 32GB is more than sufficient for business use," he says.

Given the predicted declines in flash pricing, Don Barnetson, director of flash marketing at Samsung Semiconductor, thinks general-purpose notebooks with SSDs might not be too far off. "I think you'll see [some systems] this year," he says. "But it will go into the mainstream in three to five years."

– ROBERT L. MITCHELL

SONY'S VAIO UX90 has a solid-state disk drive and sells for $1,805, which is $343 more than a unit with a 30GB hard disk.

Continued from page 26

Windows, however, is more transactional. It tends to trickle log files and other data even when systems are idle, keeping drives spinning. Placing that data in the write cache allows disk drives to power down. That could reduce power consumption by up to 90% in some cases and increase usable system life by 8% to 12%, claims Don Barnetson, director of flash marketing at San Jose-based Samsung Semiconductor. Hybrid disk drives will also be more reliable. "The hard disk drive is able to withstand shocks when it's in an off state. We can improve the reliability up to five times," Barnetson says.

While hard drive makers advocate a hybrid disk drive that places flash memory cache with the physical disk drive, Intel thinks the cache should be on the motherboard. Its Santa Rosa notebook will include 256MB of flash and can look like a ReadyBoost device or a hybrid disk accessible to ReadyDrive, says Kishore Rao, NAND product line manager at Intel.

Panabaker thinks hybrid drives are a better design for ReadyDrive, since the storage subsystem manages the cache and disk. "Microsoft has concerns about the issues associated with such a separated, nonvolatile cache," he says.

"We don't see that as being an issue," says Kishore, adding that Intel's Matrix storage manager chip will safely handle all I/O operations. Disk drive makers say problems with flash on the motherboard will be harder to service. However, Intel counters that when a hard disk fails, it would force the user to throw out the flash along with the disk.

"It's difficult to predict how this is going to play out with PC manufacturers," says Rydning. But users aren't likely to care, as long as the technologies perform and cost the same, he adds.

Jack Weilandt, chief technologist and director of NStar Electric & Gas Corp. in Boston, sees an 8% to 12% increase in battery life as "marginal at best" and adds that faster boot times are mitigated by the fact that "more boot time is spent in authentication and managed desktop component loads than in the loading of Windows itself." But he says the durability of hybrid drives is attractive.

"The key feature to me is that the heads can stay locked for large amounts of time. We put laptops in trucks and carry them to work sites where they can get banged around, so this technology would greatly reduce drive fatalities," he says, adding that a solid-state disk would be even better.

Beyond Laptops

Performance benefits may be the main reason for using hybrid disks in desktops, but Panabaker says some corporate customers have told Microsoft that they'd like to have hybrid drives in desktops so the disk drives will spin down during periods of inactivity, cutting power consumption and heat generation.

The same power savings could benefit servers with direct-attached storage, says Panabaker. And it's likely that ReadyDrive will be integrated into the next version of Windows Server — though Panabaker won't confirm it. "The code is part of the core bits in Windows," he acknowledges.

The outlook for hybrid disk in networked storage is less clear. ReadyDrive currently doesn't support iSCSI network-attached storage (NAS), but Panabaker says he sees value in supporting it as a way for network storage devices to save power and generate less waste heat in data centers.

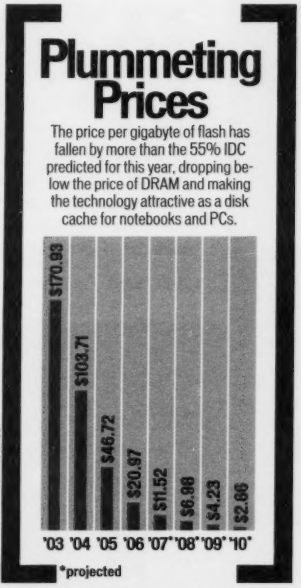
> We can improve the reliability [of disk drives] up to five times.
>
> DON BARNETSON, DIRECTOR OF FLASH MARKETING, SAMSUNG SEMICONDUCTOR INC.

Chris Bennett, vice president of core systems at Sunnyvale, Calif.-based Network Appliance Inc., says he thinks the technology might find a niche in small NAS systems, but he sees "no apparent benefit" for enterprise-class systems, noting that NetApp disk arrays already use faster dynamic RAM caches and are not typically powered down.

However, allowing drives to spin down during periods of inactivity could help data centers face heat and power challenges. "In a server environment, power consumption is a big factor," says Rao. "If you can keep disk drives spun down, that saves power."

Falling prices for flash could make it more attractive for network storage, says Panabaker. Flash "is now cheaper than DRAM, so we see an interesting trend where it may be cheaper in really specialized products, such as some high-end SCSI arrays, to use flash," he says.

As performance continues to climb and costs drop, flash is likely to become attractive for more and more applications. Says Rao, "Anyplace there is a gap between processor performance and disk I/O, flash will apply."


Plummeting Prices
The price per gigabyte of flash has fallen by more than the 55% IDC predicted for this year, dropping below the price of DRAM and making the technology attractive as a disk cache for notebooks and PCs.
$170.93
$103.71
$46.72
$20.97
$11.52
$6.98
$4.23
$2.66
'03 '04 '05 '06 '07 '08 '09 '10*
*projected
SOURCE: IDC, FRAMINGHAM, MASS.

_INFRASTRUCTURE LOG
_DAY 18: Everything is frozen. It's our processes. They're inflexible. We can't respond to change.
_Why did we lock ourselves in like this? Brrrr.
_DAY 19: A way out. IBM WebSphere middleware for Business Process Management. It lets us streamline business tasks. We can test our processes before we roll them out and monitor performance once they're deployed, and reuse is easy because it's based on a service oriented architecture.
_Everything's unfrozen now. Wow, it's good to feel my toes again.
IBM
WebSphere
Take the BPM with SOA Assessment at:
IBM.COM/TAKEBACKCONTROL/PROCESS

IBM, the IBM logo and WebSphere are registered trademarks of International Business Machines Corporation in the United States and/or other countries. ©2006 IBM Corporation. All rights reserved.

Internet2

DEFINITION

Internet2 is a consortium of universities, technology companies and government agencies working to develop and deploy advanced network applications and technologies in order to accelerate the creation of a next-generation Internet.

BY JAN MATLIS

ALTHOUGH today's Internet is often credited with creating so much change that society is still racing to catch up, it has also come to be seen as unwieldy, hidebound and problematic — ripe for revision or replacement. Security issues, spam, slow downloads and the exploding need for URLs are only some of its problems. The Internet is sometimes seen as a victim of its own success, and several initiatives are under way to develop the Internet of the future.

Internet2 is one of those initiatives, and it has a longer history than most of the others. The launch of the first Web browser, Mosaic, in 1993 marked the transition of the Internet from a university/research-oriented tool to a commercial and public institution service. Three years later, a group of 36 scientists met in Chicago to discuss ways of developing and implementing a new Internet, which they named Internet2. The project has come to be formally administered by the University Corporation for Advanced Internet Development (UCAID).

Internet2 is now a consortium made up of more than 200 U.S. universities, 70 private companies and 40 other organizations, including U.S. government laboratories. It is connected to similar initiatives around the world. *Collaboration* and *competition* may be the twin watchwords for all these initiatives as they attempt to develop higher bandwidth connectivity, improved network protocols and advanced applications that are not possible under the limitations of the current Internet.

Internet2 has four primary areas of interest and development, according to its Web site: 1) high-performance networks that will have higher bandwidth, 2) advanced network applications to improve collaboration among people and to provide interactive access to information and resources, 3) new network capabilities, such as improved quality of service, multicasting and Internet Protocol Version 6 (IPv6), that will improve throughput and management of network traffic, and 4) middleware.

Internet2 isn't after a "killer app," according to Ted Hanss, the group's director for applications development. Instead, it describes four attributes that are found in the most compelling applications: They enable interactive collaboration environments; they provide common access to remote resources; they use the network as a "backplane" to build networkwide computation and data services, such as those under development in a grid; and they display information through virtual environments.

Internet2 is a shifting and somewhat competitive collaboration that has grown in ways that have been determined by the market. For example, the bursting of the telecommunications bubble in 2002 presented several opportunities for universities to save money by buying unused fiber-optic cable, known as dark fiber, and creating their own networks.

Network backbones constructed out of and leased from companies that had plenty of dark fiber on their hands linked university campuses and research sites. Some of these networks include I-WIRE, which connects the University of Illinois at Urbana-Champagne with other universities and research institutions in the Chicago area. Another is the CENIC network, which connects University of California campuses, California State University campuses, California Institute of Technology, Stanford University and the University of Southern California.

Internet2 originally had a contract with Qwest Communications International Inc. for a national backbone, named Abilene after the railheads that met in Abilene, Kan., to transport cattle. That network handled data at a maximum of 10Gbit/sec. It also used the IPv6 protocol rather than IPv4, which is standard on the public Internet. IPv6 uses 128-bit Internet addresses instead of the 32-bit addresses used by IPv4, which increases the number of available addresses from about 4 billion to about 10^{28} times that. Thus, it's more likely that there will be addresses for all of the wired, personal-use equipment that is expected to come online.

Abilene, in conjunction with another backbone provider called National LambdaRail, also served as a testbed for Internet2's Hybrid Optical and Packet Infrastructure project, an attempt to take the best features of packet-switched networks (such as the current Internet) and circuit-switched networks (such as old-time phone lines).

Subsequently, Internet2 held talks with National LambdaRail, which provides connectivity to a consortium of universities and research institutions, to provide a backbone for Internet2. (The *Lambda* in the name refers to the wavelengths of light that provide data transmission in fiber-optic networks, and the *Rail* is another instance of nostalgia for railroad networks.) However, those talks broke down, and Internet2 signed a contract with Level 3 Communications Inc. to lease fiber-optic lines, acquiring 10 times the capacity that had been provided by Abilene. The new network will be called NewNet.

There are other high-speed research-oriented networks, including one called vBNS, developed by MCI Inc. for the National Science Foundation. And there are other umbrella organizations with similar goals to those of Internet2, such as the U.S. government's Next Generation Internet project. The institutional and funding relationships are themselves densely networked.

Although the U.S. was the original home of the Internet, with its origins in the ARPANet, today the race for a new Internet extends throughout the world, with implications for global collaboration and competition.

Matlis is a freelance writer in Newtonville, Mass. He can be reached at jmtgpcmcm@netzero.net.

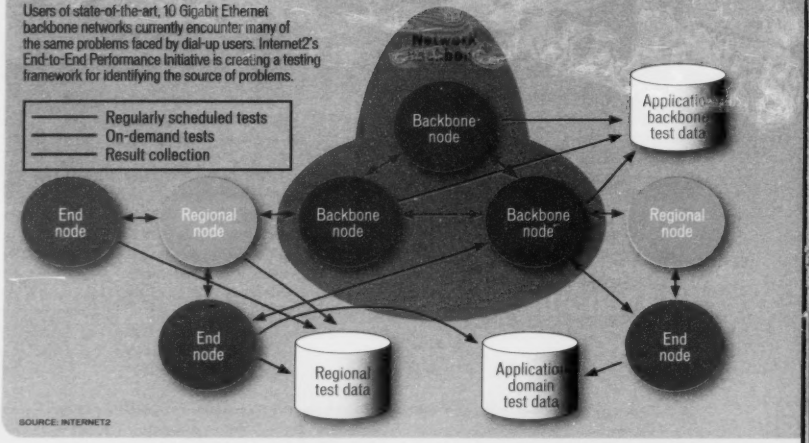
QUICK STUDY

Are there technologies or issues you'd like to learn about in QuickStudy? Send your ideas to quickstudy@computerworld.com

To find a complete archive of our QuickStudies, go online to computerworld.com/quickstudies

PUTTING IT TO THE TESTS

Users of state-of-the-art, 10 Gigabit Ethernet backbone networks currently encounter many of the same problems faced by dial-up users. Internet2's End-to-End Performance Initiative is creating a testing framework for identifying the source of problems.



SOURCE: INTERNET2

Soaking It All Up at the Black Hat Conference

Armed with new information, our manager comes home to face a possible outbreak of malicious code. By Mathias Thurman

SECURITY professionals who can attend just one conference a year should make it Black Hat in Las Vegas. It attracts extremely talented information security professionals, and the informative, relevant and timely classes and briefings are mostly conducted by industry experts.

An extra benefit is that the annual DefCon computer hacker conference is always held right afterward. If you don't get enough security training at Black Hat, stick around, and DefCon will be sure to fill your brain to the brim.

SECURITY MANAGER'S JOURNAL

Black Hat is fun. When I go, as I did earlier this month, I usually bump into folks I know, whether I worked with them in the past or have just been exposed to them in some fashion. It's always great to share war stories and reminisce about how things were done in the old days.

But you can find yourself having informative discussions with complete strangers. At this year's Black Hat, I spent most of my time attending the Microsoft Vista sessions, since I'm interested in learning about the security features of Microsoft's new operating system. The discussion on Microsoft's kernel-hardening was interesting, but at one point, I got lost in the technology-speak, not being a kernel-level programmer by trade.

So when my coffee cup went empty, I left the room and ended up in a very interesting hallway conversation with a couple of information security professionals who were talking about Asterisk. That's an open-source telephone private branch exchange system that can be easily installed on Linux.

The PBX talk led to another interesting discovery for me. One of the guys was talking about CallerID on a PBX and mentioned that if you configure a phone's CallerID to display the name of the owner of a cell phone number and then call that cell phone from the phone with CallerID, you will probably be given access to the cell phone's voice mail. Of course, this won't happen if the cell phone's voice mail has a password, but how many people configure passwords for their cell phones? Until then, I hadn't (shame on me). Needless to say, the next time I sent out a standard "Don't open attachments from strangers" message to our employees, I included that perhaps trivial piece of information.

Back to the briefings. I found a session on incident response presented by the CEO of Mandiant to be a validation of my own incident-response procedures. Alexandria, Va.-based Mandiant is a professional services company that has a lot of experience with incident response and forensics, and I gained some knowledge about a few tools in its First Response program. Ironically, it was incident response that had my attention the very day I returned to work from Black Hat.

> You can find yourself having informative discussions with complete strangers.

Mystery Malware

A succession of people had called our help desk claiming that their machines had arbitrarily rebooted, and we thought malicious code was propagating through our network. We needed to do a forensic examination on one of the victimized laptops, but many of the people calling were in remote offices or even in another country. Luckily, a machine from one of our project managers, whose office is just a few doors down from mine, was affected, so I looked at her laptop.

Our normal procedure is to take an image of a compromised laptop so that we can conduct the forensic exam on the mirror image and let the owner of the laptop continue to work. But the calls to the help desk were rising, and we didn't have time to take an image. We had to get right to work tracking down the source of the problem.

We used some tools to view things like running processes, event logs, open ports, services and scheduled tasks. Nothing showed up that looked malicious. We installed and ran a couple of different virus-detection tools. Again, we saw no signs of anything malicious. We even connected the laptop to a hub and used Ethereal, a free network-protocol analyzer (sniffer) to monitor the network traffic generated from the laptop. It all looked legitimate.

Then, as we were getting ready to roll our sleeves up to conduct some advanced forensics, one of the desktop engineers discovered that a Microsoft Systems Management Server (SMS) push had been executed the night before. We use SMS to push patches and selected software to our 10,000 desktops. Usually, we schedule such activities in advance and tell users and the help desk about the pending push. Even emergency pushes still involve a fair amount of communication. This time, unfortunately, we'd a communications breakdown.

The systems engineer responsible for pushing the security patch was under the impression that the proper coordination and communication had occurred and that he had permission to execute the SMS push. But a check of our remedy ticketing system indicated no planned or emergency change control for the SMS push, and no communications had been sent out.

Fortunately, since most of our users are configured for automatic updates, only those users who didn't have the required patch (which necessitated a reboot) were affected.

But while this was a bit of a false alarm, we ended up with a good exercise in incident response that validated some of our procedures. One thing I've learned over the years is that every security incident is different. But whether an incident is a real security breach, malicious code propagation or some quirky network issue, a solid incident-response process should let you sort it all out efficiently. This time, I've learned to add the SMS check to our response protocol so that next time we won't be running around like chickens with their heads cut off for no reason. ▸

WHAT DO YOU THINK?

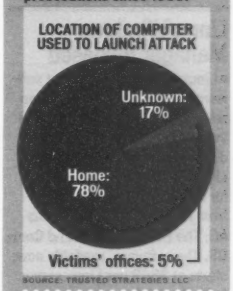
This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussions in our security blogs: **computerworld.com/blogs/security**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**.

SECURITY LOG

Report Documents Cybercrime Facts

Although computer crime can cost organizations millions of dollars, most attacks do not involve sophisticated hackers and could be prevented by validating that the computer connecting to internal accounts is an authorized device. Those are among the conclusions of a study to be released today by Trusted Strategies LLC that looked at network attacks as documented in U.S. Department of Justice prosecutions since 1999.



Event Management Software Upgraded

CrossTec Corp. released Version 3.5 of its Activeworx security event management program. It uses a company's existing security infrastructure to help manage and keep track of security events. The latest version includes an embedded report center and correlates based not only on events, but also on vulnerability, host and application information.

SecureOffice Suite Ported to Linux

Trusted Computer Solutions Inc. released a Linux version of its TCS SecureOffice, a suite of cross-domain guards that incorporate trusted functionality at the operating system level. The product helps companies meet federal requirements for secure information sharing.

BRIEFS

IBM Announces SOA Portal Server

■ IBM last week announced a new portal server designed to let companies build composite applications within a service-oriented architecture for a lower price than using IBM's existing portal tools. WebSphere Portal Server is designed to provide easy access to enterprise information stored in systems from vendors such as Oracle Corp. and SAP AG. It also includes WebSphere Portlet Factory Designer. Portal Server is available now at $2,500 for 20 users or for $50,000 per processor.

Linux/Windows Manager Released

■ Linux server management software vendor Centeris Corp. has released Likewise 2.0, software intended to help Linux and Windows networks work together. Likewise now includes support for 64-bit Linux distributions from Red Hat Inc., SUSE Linux AG, The Fedora Project and CentOS. The software, available now, starts at $349 per Linux server. A 30-day trial version can be downloaded at *www.centeris.com/freetrial*.

Global 360 Updates Business Process Tool

■ Business process management software vendor Global 360 Inc. has released G360 BPM Suite Version 9.4. The new version works with Microsoft Office, SharePoint and InfoPath, as well as Corticon Business Rules Management software. Pricing starts at $100,000.

Learning Management System Is Launched

■ NetDimensions Ltd. in Hong Kong announced the release of Version 4.6 of its Enterprise Knowledge Platform. EKP is the first learning management system to be integrated with SkillSoft PLC's Web services-based Open Learning Services Architecture. EKP 4.6 will ship Sept. 12, and pricing starts at $17,000.

MARK WILLOUGHBY

Users Wait While UTM Market Roils

THE MARKETPLACE FOR multipurpose unified threat management appliances, or UTMs, the Swiss Army Knives of security and networking, is taking that proverbial fork in the road that leads to either economies of scale or the exit doors.

MARK WILLOUGHBY, CISSP, is a 20-year IT industry veteran and journalist. Contact him at willoughby@earthlink.net.

Appliances and UTMs are the tip of the hardware spear, with faster and more capable hardware supporting a wider mix of embedded software applications. Today, UTMs come with antispam, antivirus, intrusion-detection, firewall and packet inspection, and antispyware capabilities, as well as VPN connections, Wi-Fi access points and more.

The march of Moore's Law adds more capability and value to these appliances for customers lacking a best-of-breed requirement, and the lifecycle, cost-of-ownership advantages for the appliances are compelling. Pundits are predicting that UTM appliances will become the dominant security delivery technology in the next two to three years. Users will do well to keep a sharp eye on the rapidly changing vendor landscape in order to keep track of their options.

Recent developments in the security industry suggest that UTM is moving from an emerging marketplace that can support niche players to a commodity market dominated by a few large companies. Entry-level prices for appliances are hovering around $600. Profitability means high volumes, economies of scale and razor-thin margins.

On June 20, Symantec announced that it was dropping out of the UTM marketplace, preferring to bolster its profits with higher-value products and services. Meanwhile, on July 25, WatchGuard accepted a $151 million buyout offer that represented a small premium over the company's price per share.

Symantec says it is choosing to innovate with products and services in the security management arena and its merging security and storage businesses. Chief among its goals is maximizing the security-storage synergies of its Veritas acquisition, since the stakes have been raised by EMC's announced acquisition of RSA Security.

Symantec obviously sees far more profits in layering security applications, such as authentication, authorization, content security, policy management and encryption, with multitiered virtual storage systems.

Being acquired by the $5 billion Francisco Partners private equity firm puts all options on the table as WatchGuard becomes a wild card in Francisco's portfolio. WatchGuard could be merged with another UTM vendor to further accelerate consolidation, or its technology could be combined with newer ones, such as network switching, in an attempt to provide differentiation and value. Another option for Francisco could be to extend the UTM business model into services and subscription revenues.

These developments among UTM vendors came as no surprise to astute users. In the past month, the UTM arms race has escalated, with faster appliances introduced by Cisco, Check Point, SonicWall, Tumbleweed, CipherTrust and WatchGuard, among others. Sun chimed in with a new blade server.

New types of appliances are in the wings to accelerate XML, service-oriented architecture components, directories, authentication and authorization, and almost any type of software that can be shrink-wrapped.

The wisdom of Symantec's strategy will be revealed in future financials. EMC recorded a net profit margin of almost 11% for its latest quarter, as a high-end vendor of storage and virtualization systems. Symantec, perhaps bruised by appliances, has some catching up to do. Its net profit margin as a multiline security vendor was 9.6% for its latest quarter.

EMC/RSA will not enter the cutthroat hardware appliance marketplace and put its profitablity at risk. Consider that public appliance vendors SonicWall, Tumbleweed and WatchGuard all reported net losses for their latest quarters. CipherTrust, in the cross hairs of a $273 million Secure Computing acquisition, is private and has worked hard to develop service differentiators to complement its appliances.

Those posting profits in the hardware appliance marketplace have tremendous scale with multiple product lines — such as Cisco, with a 22.7% net profit margin — or a unique business model. Check Point, an Israeli company that has established a software franchise, enjoys a very robust 46% net profit margin.

Even Cisco sees the risk of the high-volume, low-margin appliance business and is talking about unbundling its core IOS network software from its hardware. This move will allow Cisco to realize more value from support, training and upgrades, which are huge sources of software profit. Cisco's endgame is to winnow the ranks of UTM vendors through consolidation, ultimately presenting an opportunity to raise hardware prices.

Oracle, with net profit margins typically close to 20%, and Microsoft, usually posting net profits in excess of 30%, are not likely to enter the hardware appliance marketplace. Microsoft weathered the commodity hardware business with its Xbox game console, assuming the ironic position of supporting hardware that affords gaming software vendors higher profit margins than Microsoft makes from the gaming console. ▸

WANT OUR OPINION?

For more columns and links to our archives go to: **www.computerworld.com/columns**

Congratulations Award Nominees!

The "Best Practices in Infrastructure Management" Finalists will be honored Wednesday, September 13th at Infrastructure Management World in Scottsdale, Arizona.

Computerworld's Infrastructure Management World proudly presents the "Best Practices in Infrastructure Management" Awards Program, honoring top IT user "best practice" case studies selected from a field of qualified finalists.

AWARDS PROGRAM EXCLUSIVELY SPONSORED BY:

EMC² where information lives®

Finalists in each of the following categories are:

Distributed Systems and Intrastructure Implementation/Dynamic Infrastructure

- ChoicePoint, Alpharetta, Georgia
- City of Chicago, Chicago, Illinois
- Detroit Medical Center, Detroit, Michigan
- Lockheed Martin, Gaithersburg, Maryland
- Solvay Pharmaceuticals, Inc., Marietta, Georgia

Security, Risk Management and Business Continuity/Dynamic Information

- Allstate Insurance Company, Buffalo Grove, Illinois
- Army Knowledge Online, Chantilly, Virginia
- Capital Technology Information Services, Inc., Rockville, Maryland
- Marriott International, Inc., Washington, D.C.
- University of Minnesota, Minneapolis, Minnesota

Data Center and Network Consolidation/Dynamic IT

- Catholic Health Partners, Cincinnati, Ohio
- CSX, Jacksonville, Florida
- General Mills, Minneapolis, Minnesota
- Kane County, Geneva, Illinois
- TIAA-CREF, Charlotte, North Carolina

Managing to Improve TCO/ROI

- Accenture, Chicago, Illinois
- National Instruments, Austin, Texas
- Polo Ralph Lauren, Greensboro, North Carolina
- SHOP.COM, Monterey, California
- Verizon Business, Basking Ridge, New Jersey

Innovation and Promise

- Accenture, Chicago, Illinois
- CN (Canadian National Railway), Montreal, Quebec
- Duke Medicine, Durham, North Carolina
- Lockheed Martin, Orlando, Florida
- MIT Whitehead Inst. for Bio-Medical Research/MIT BioImaging Center/CSBi, Cambridge, Massachusetts

Judging Criteria

Judges will evaluate and rank the finalists in each category according to their substantiated Infrastructure Management solution attributes and achievements against a set of criteria such as:

- Financial return and measurable payback (returns on investment, assets, resources)
- Created/protected revenue opportunities or cost savings.
- Strategic importance to the business.
- Substantive customer impact (service, retention, acquisition).
- Positive impact on other business/organization units.
- Addresses system and department interoperability issues and heterogeneous platform integration challenges.
- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future mobile and wireless solution initiatives.
- Supports the efficient and reliable data, information and application sharing/access between personnel, departments, divisions, etc.
- Addresses challenges of data, information and application security, recovery, business continuity, etc.

Thank you to our "Best Practices in Infrastructure Management" Judges for Infrastructure Management World 2006:

- Andres Carvallo, Austin Energy
- Nida Davis, Enterprise Architecture
- Laura DuBois, IDC
- Stephen Elliot, IDC
- Frank Enfanto, Blue Cross Blue Shield of Massachusetts
- George Feitel, Assesment Wavera
- Don Gibson, FedEx Kinko's Office and Print Services
- Ron Milton, Computerworld
- Mark Shirman, GlassHouse Technologies
- Pat Thibodeau, Computerworld
- James Wheeler, BellSouth Corporation

Have You Unlocked the True Value of Business Intelligence?

Computerworld's IT Management Summit Can Show You How

Why do some companies thrive and prosper by leveraging business intelligence, while others can't seem to find the value? In today's competitive marketplace, maximizing business performance can be directly related to understanding how to unlock the potential of business intelligence. And understanding this potential can be learned by simply seeing how others have succeeded.

Apply to attend Computerworld's complimentary* half-day IT Management Summit: Unlocking the Value of Business Intelligence: Keys to Maximizing Business Performance.

* Complimentary registration is restricted to qualified IT directors and managers only.

Apply for registration today
Contact Jean Lee at 888-299-0155
or visit: **www.itmanagementsummit.com**

September 14, 2006 • Phoenix, Arizona

Hyatt Regency Phoenix • Regency Ballroom, Salon D
8:30am to Noon with Optional Lunch at Noon

Unlocking the Value of Business Intelligence: Keys to Maximizing Business Performance

Introduction and Overview
Ron Milton, Executive Vice President, Computerworld

Business Intelligence Best Practice and Technology Overview
Bill Hostmann, Research Vice President, Gartner

Competing on Analytics
Thomas Davenport, President's Distinguished Professor of Information Technology and Management, Babson College

Using Technology to Get Better Answers Faster
Keith Collins, Senior Vice President and Chief Technology Officer, SAS

Hitting the Jackpot by Leveraging Business Intelligence at Harrah's
Tim Stanley, Chief Information Officer, Harrah's Entertainment

Building a Performance Management Center of Excellence
Mike Cozzi, Senior Technical Director, AT&T and Renée Romano Nocker, Executive Director, Enterprise Business Intelligence, AT&T

Optional Luncheon and Presentation: Making BI a Success – Getting the Edge
Bill Hostmann, Research Vice President, Gartner

COMPUTERWORLD
IT MANAGEMENT SUMMIT
BUSINESS INTELLIGENCE

Exclusively sponsored by

sas
THE POWER TO KNOW.

intel

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration. Other brand and product names are trademarks of their respective companies. Intel and the Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

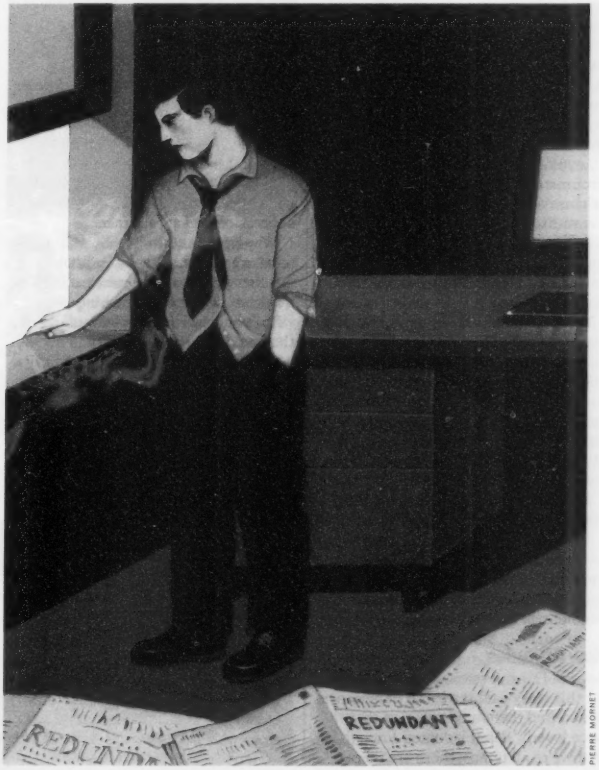
IT MENTOR
Electronic Discovery: Managing the Unmanageable
When litigation looms, it's up to IT to manage the size and cost of e-discovery. Attorney Benjamin Barnett provides concrete, common-sense guidance. **PAGE 38**

Managers' Forum
Breadth or depth: Which is more important for advancing your career? Paul Glen weighs in. He also advises a new IT liaison on how to mend fences with alienated customers. **PAGE 37**

OPINION
Security: It's the CIO's Job
Admit it: You really don't know if your internal IT infrastructure is safe and secure. But there are things you can do to fend off catastrophe and sleep better at night, says Paul M. Ingevaldson. **PAGE 40**

Discarded and Demoralized

By Thomas Hoffman



PIERRE MORNET

IT workers who have been victimized by layoffs say their dismissals have left long-lasting emotional and professional scars.

As IT director at a small oil services company in Oklahoma City from 2001 to 2003, Steven Nash was a jack-of-all-trades. He first joined the company as its only IT employee, doing everything from managing Web servers to troubleshooting PCs for 25 to 30 people.

As the firm grew, it entered into a couple of joint-venture projects with larger companies and added staff to handle the extra work, including a few more IT employees. But when the two projects fell through, the oil services company found itself with more workers than it needed.

Nash went to work on a Monday in August 2003 and was given a strong annual performance review by his supervisor, who also recommended him for a raise. Two hours later, Nash met with the same supervisor, the president of the company and the head of human resources, who collectively informed him that he and seven other employees, including other members of the IT staff, were being let go.

The layoff "came as quite a shock," says Nash, who subsequently did contract work before landing a job as a field training coordinator at an energy company about 18 months ago. It also came at a tough time. Nash's wife wasn't working, and with three children, they had trouble making ends meet. Plus, widespread layoffs at WorldCom and other employers in Oklahoma City and Tulsa had left a glut of highly skilled IT professionals in the local market.

During the 18 months that Nash worked as a contractor, he earned $10,000 less than he had with the oil services company, and the financial strain took its toll. "My wife and I almost went through a divorce," says Nash. "I began to doubt my ability to find another full-time job."

Fortunately, Nash's church congregation provided his family with food for six to eight months. That left Nash with enough money to pay the rent. Meanwhile, his in-laws pitched in for clothing and other expenses.

Nash has since bounced back, and he's grateful for the support that he and his family received from relatives and

Cushioning the Blow

For anyone who's ever been on either end of a layoff, it's a rotten experience. But managers can take steps to help preserve victims' dignity and assist survivors in coping. Here are 10 tips from Amy Wrzesniewski, associate professor of organizational management at the Yale University School of Management, and Batia Wiesenfeld, an associate professor at New York University's Stern School of Management.

1. **BE CANDID.** Research shows that open and ongoing communication with employees about the need to cut costs and the various options being weighed is the best approach for all involved.
2. **PROVIDE ADVANCE NOTICE WHENEVER POSSIBLE.** This helps make layoff victims feel in control and lets survivors know what's coming.
3. **BE FAIR.** Research shows that layoff victims and survivors fare better if they perceive that procedures have been just.
4. **COMMUNICATE** with employees as frequently, simply and meaningfully as possible during a layoff.
5. **EXPLAIN THE RATIONALE** for the layoffs to victims and survivors. If additional layoffs are unlikely, it will help survivors settle down.
6. **INSERT YOURSELF INTO THE PROCESS** if your direct reports are being let go. Layoff victims find it particularly troubling to be fired by someone at a higher level than their supervisor.
7. **TREAT PEOPLE WITH DIGNITY AND RESPECT.** Try to see the layoff from the perspective of the person who's being let go.
8. **AVOID BIAS.** Create a representative group of employees who can provide input on the layoff process to prevent even unintentional bias.
9. **TAKE CARE OF PEOPLE FINANCIALLY.** Following industry norms on severance pay signals respect. It also helps prevent sabotage, stealing and anger among survivors.
10. **PROVIDE NONFINANCIAL BENEFITS** such as notifying laid-off workers about internally posted positions and informing area employers that talented people are available.

friends. But the layoff has left a mark on his life, both from a personal and a professional standpoint.

"I can't say I'm completely over it," Nash says. During his probationary period at his new company last year, he kept looking over his shoulder, waiting for the ax to fall. After Nash made it through those first 90 days, his new boss told him he needed to relax.

Continuing Struggle

Tens of thousands of IT professionals have felt the sting of layoffs and outsourcing over the past six years. Joblessness among IT professionals became acute after the dot-com bust in mid-2000, and the economic fallout of the Sept. 11 attacks in 2001 made it a double whammy.

Although the economy has since strengthened, and demand for skilled IT professionals is on the rise, many people who were laid off during this period have struggled to put their personal and professional lives back together.

"In American society, our professions are such a big part of how we identify ourselves," says Batia Wiesenfeld, an associate professor of management at New York University's Stern School of Management. "Think about it: The prevailing question at parties is, 'What do you do for a living?' People feel like they're part of a community in their workplaces. So when someone is laid off, they feel like they've lost their community, even their family."

That sense of community can be particularly tight among developers, who sometimes work closely together for months or even years at a time. After Clint Woods joined Beneficial Finance in 1995 as a team development leader in Tampa, Fla., he and a group of developers worked together on a Visa/MasterCard project. They became close over the next few years and continue to stay in touch with one another.

When Household Finance Corp. acquired Beneficial in 1998, Woods was one of the employees laid off. "From an emotional standpoint, it was very difficult" separating from other members of the project team, says Woods, who is currently an application systems manager for the Southwest Florida Water Management District in Tampa.

Being fired from a job that you've poured your heart and soul into can be particularly gut-wrenching.

When Sharon Way first started as director of applications in the Secaucus, N.J., office of Amsterdam-based Gucci Group NV in 2000, she says, "it was the best 18 months I've had" in 30 years as an IT professional. But after a senior management upheaval in 2002, Way was one of several managers let go.

> "My wife and I **almost went through a divorce**. I began to **doubt my ability** to find another full-time job."
>
>
>
> **Steven Nash,** Field training coordinator, on his layoff experience

Even though she was able to come to grips with the layoff and "roll with the punches," it hasn't left her untouched. "I lost part of my soul there," says Way, who after a two-month layoff joined Vitamin Shoppe Industries Inc. in North Bergen, N.J., as manager of application development.

The layoff certainly changed her professional outlook. "I don't try as hard as I used to," says Way. "I used to work 60-to-70-hour weeks and then do work on top of that. Now, I'll do my 50 and not make myself sick."

Layoffs are demoralizing under any circumstances, but handled badly, they can be even worse. In 1997, Glenis Nelson was told by his managers at Dun & Bradstreet Software that he had to train his replacement — an H-1B visa holder — if he wanted to receive his severance package.

Nelson, a five-time layoff victim during his 35-year IT career, says that was only one of many blows to his psyche. Like other laid-off IT workers, he couldn't always be fussy about interim employment. "You've got to keep working until you can find another job," he says. "It's tough to leave an $80,000-a-year job to flip hamburgers."

Each layoff wreaked havoc on his emotional mind-set. "I happen to be a diabetic, and I've been in tears not knowing if I'd be able to pay for my medication," says Nelson, now a senior application developer at Information Technology Inc. in Birmingham, Ala.

New Attitudes

Several IT professionals interviewed for this story said the layoff experience has soured them on a vocation they once loved. "What it comes down to is that we're all temps; there are no permanent employees," says Glenn Deles, a systems engineer at Talx Corp., a human resources and business process outsourcing provider in St. Louis.

Deles was laid off in April 2004 by Teralogix, a St. Louis-based IT services provider, after it was acquired by WebMD Inc. For the first two months after the deal was announced, Deles was told repeatedly that his job was safe. Then one day he was called into the company's HR office and let go.

Deles, who has been laid off four times in his 24 years as an IT professional, has tried to remain pragmatic about it. "There's no other choice," he says. "Being laid off is an impersonal thing. When you're told you no longer have a job, you don't know if it's because they don't like you or if it's a matter of finances."

Still, many people can't help but take it personally. Nelson, for example, admits that since his first layoff — in 1991, when his employer, C&S/Sovran Corp., was acquired by NCNB Corp. to form NationsBank — he has put up a wall. "I don't get involved with people like I used to," he says. "I probably never recovered from that layoff. It was like family."

Workers who are victimized by layoffs often go through the same type of grieving cycle experienced by those who have lost loved ones, says NYU's Wiesenfeld. Those cycles, noted by psychiatrist Elisabeth Kubler-Ross in her groundbreaking book *On Death and Dying*, include shock, denial, anger, depression and acceptance.

Way says that ultimately, what matters isn't what happens to you but whether you're able to get over it. "The most important thing that happens when you lose a job — particularly one that you like — is the ability to heal, which I did at my own pace," she says.

Nash says senior executives need to focus less on earnings targets and more on an organization's most important asset: its people. "One of the fallacies of laying people off is that 'it's not personal, it's just business,' " he says. "That's a lie. It's always personal."

More on Life After a Layoff

Visit our Web site to read related stories about layoff survivors and their new career paths.
www.computerworld.com/careers

Do you have a layoff story to share? Are you a manager wondering how to conduct staff reductions in the least hurtful way? Experts will be answering select reader questions online. Post yours at
www.computerworld.com/blogs/careerforum

THE PAPER AND INK USED IN
PUBLICATION MAY AFFECT
THE MICROFORM E

MANAGERS' FORUM

WITH PAUL GLEN

ADVICE

I hope this monthly column will provide a lively exchange of ideas with IT managers. I'll do my best to answer your questions, and some of your responses will run alongside in "Readers Talk Back." Please send your questions, comments and critiques to me at pglen@c2-consulting.com.

Q Do you think it is necessary to move around in IT and gain experience in a variety of areas in order to move up, or should I specialize and develop in-depth knowledge in just one or two areas? Is it advisable to gain business unit experience in addition to IT experience?

I'd say it really depends on the career goals of the person who is asking the question.

More and more enlightened IT shops are developing parallel career ladders, one for management and another that's purely technical. People in these departments get to choose which path to follow and sometimes can hop from one to another after some experimentation. This way, technical people who don't want to manage don't run out of career advancement opportunities too early. They have the opportunity to continue to grow in value, be recognized for it and earn more without putting on the suit.

So the question really has to be answered differently depending on the direction that the person wants to go.

If someone's goal is to move up through the management ranks, I'd say that moving around and gaining business unit experience is more important than developing technical depth. No matter how technical someone is, once he chooses to make a leap to the management track, his primary value to the organization is no longer in his technical skills.

Once the person chooses the management role, his breadth of experience, provided that it has been digested and converted into knowledge and wisdom, will be much more important than his technical skills. As time goes on, his technical skills will atrophy anyway. (Yeah, I know that I just annoyed a bunch of you, but it's true.)

If the person wants to remain technical throughout his career, then technical depth becomes more important. But even within the purely technical ranks, moving around within IT and the business is still valuable.

Moving around in IT offers a person a much broader perspective to bring to bear on problems, even if he intends to remain relatively close to a technical home base over the long run. For example, architects who have spent time in user support are much more sensitive to issues of supportability, deployment, troubleshooting, work-arounds and upgradability than those who have never left the ivory tower. Data modelers who have spent time in business units better understand what they are modeling and can offer much richer advice than those who haven't.

In either case, I think that moving around is a great idea, so it's just a matter of priorities.

Q There is a long history of animosity between my user group and the IT department. I am now the liaison between the user organization and the IT department, and the sponsor is always upset with me. What can I do to improve the relationship?

Ah, fun. Who did you annoy to get this plum assignment? Actually, it may not be so bad.

We all like to think that we create our own positions and are in control of our successes and failures. But that's rarely completely true. Most of us take on jobs that others have held before us, and we live with their legacies for better or for worse. You may follow a goat, or you may follow a prince. Both paths have challenges, but the challenges are different.

In some ways, things could be worse. When you take over a failing relationship, there's nowhere for you to go but up. If your client has low expectations, it's easier to exceed them than it would be if he expected great things of you. If you were following a beloved figure who maintained a perfect working relationship, the bar would be set much higher for you.

Anyway, the first thing you've got to do is to figure out what's really going on with the sponsor. Here are the general possibilities:

1. He's really upset with you personally.
2. He's upset about the quality of products and services he is receiving from your department.
3. He's still upset about past relationships and/or service.
4. He's got a combination of some or all of the above.

If he's upset with you personally, you've got to figure out what you've done and try to make amends. Since you're new, this is the least likely scenario. Unless you've really gotten off on the wrong foot, chances are the problem is elsewhere.

If he's upset about the quality of current services, then you need to show some empathy for and understanding of his dissatisfaction. You need to acknowledge his feelings about the facts of the services. Then you need to work together to develop a strategy to get him more of what he wants. If he sees you as an ally, he can still be upset with the department but not with you.

If he's still upset about the past, there's not much you can do besides acknowledge the failures of your predecessors and the department and apologize. Try to get him past those old wounds and let him see that you are going to try to make things better. ▸

READERS TALK BACK

PAUL,

I can't agree with the reader's conclusions on "the project manager as politician" in the recent Managers' Forum in *Computerworld*. In fact, it appears to me that he has jumped to conclusions.

Certainly, it is true that a project leader should not necessarily need direct control (i.e., formal authority) over others in order to gain their cooperation. But what if he's not getting cooperation? Without knowing any details, how do we jump to the conclusion that the project leader's personal skills are deficient? Isn't it at least possible that there are other contributing factors? Conceivably, there could be good reasons why someone is failing to cooperate, or there could be bad ones, and those factors might have little to do with the project leader's personal skills.

In actual practice, management typically blames the project leader without even trying to look at facts. This doesn't solve the problem or contribute to its resolution. It merely provides the manager with a convenient excuse to dump the problem back in the project leader's lap.

Somehow, managers find a way to justify this as effective leadership. Common sense should tell us that it is actually dysfunctional. It is a do-nothing style of leadership that accomplishes absolutely nothing.

– WTR

Thanks for your thoughtful comments.

Of course, in this case, we can't be sure as to the actual source of the project leader's problems, but it is clear that I missed the opportunity to talk about the project manager as politician.

Even if a project manager is meeting resistance for a very good reason – technical, personal or political – he needs the interpersonal skills to explore the resistance and negotiate a reasonable solution.

While upper management should not necessarily blame a project leader for encountering resistance, it is fair to blame a project leader for failing to recognize it, resolve it or escalate the matter by asking for help.

– PAUL GLEN

D IN THE ORIGINAL
T THE QUALITY OF
M EDITION.

Cushioning the Blow

1. **BE CANDID.** Research shows that open and ongoing communication with employees about the need to cut costs and the various options being weighed is the best approach for all involved.
2. **PROVIDE ADVANCE NOTICE WHENEVER POSSIBLE.** This helps make layoff victims feel in control and lets survivors know what's coming.
3. **BE FAIR.** Research shows that layoff victims and survivors fare better if they perceive that procedures have been just.
4. **COMMUNICATE** with employees as frequently, simply and meaningfully as possible during a layoff.
5. **EXPLAIN THE RATIONALE** for the layoffs to victims and survivors. If additional layoffs are unlikely, it will help survivors settle down.
6. **INSERT YOURSELF INTO THE PROCESS** if your direct reports are being let go. Layoff victims find it particularly troubling to be fired by someone at a higher level than their supervisor.
7. **TREAT PEOPLE WITH DIGNITY AND RESPECT.** Try to see the layoff from the perspective of the person who's being let go.
8. **AVOID BIAS.** Create a representative group of employees who can provide input on the layoff process to prevent even unintentional bias.
9. **TAKE CARE OF PEOPLE FINANCIALLY.** Following industry norms on severance pay signals respect. It also helps prevent sabotage, stealing and anger among survivors.
10. **PROVIDE NONFINANCIAL BENEFITS** such as notifying laid-off workers about internally posted positions and informing area employers that talented people are available.

friends. But the layoff has left a mark on his life, both from a personal and a professional standpoint.

"I can't say I'm completely over it," Nash says. During his probationary period at his new company last year, he kept looking over his shoulder, waiting for the ax to fall. After Nash made it through those first 90 days, his new boss told him he needed to relax.

Continuing Struggle

Tens of thousands of IT professionals have felt the sting of layoffs and outsourcing over the past six years. Joblessness among IT professionals became acute after the dot-com bust in mid-2000, and the economic fallout of the Sept. 11 attacks in 2001 made it a double whammy.

Although the economy has since strengthened, and demand for skilled IT professionals is on the rise, many people who were laid off during this period have struggled to put their personal and professional lives back together.

"In American society, our professions are such a big part of how we identify ourselves," says Batia Wiesenfeld, an associate professor of management at New York University's Stern School of Management. "Think about it: The prevailing question at parties is, 'What do you do for a living?' People feel like they're part of a community in their workplaces. So when someone is laid off, they feel like they've lost their community, even their family."

That sense of community can be particularly tight among developers, who sometimes work closely together for months or even years at a time. After Clint Woods joined Beneficial Finance in 1995 as a team development leader in Tampa, Fla., he and a group of developers worked together on a Visa/MasterCard project. They became close over the next few years and continue to stay in touch with one another.

When Household Finance Corp. acquired Beneficial in 1998, Woods was one of the employees laid off. "From an emotional standpoint, it was very difficult" separating from other members of the project team, says Woods, who is currently an application systems manager for the Southwest Florida Water Management District in Tampa.

Being fired from a job that you've poured your heart and soul into can be particularly gut-wrenching.

When Sharon Way first started as director of applications in the Secaucus, N.J., office of Amsterdam-based Gucci Group NV in 2000, she says, "it was the best 18 months I've had" in 30 years as an IT professional. But after a senior management upheaval in 2002, Way was one of several managers let go.

> **"My wife and I almost went through a divorce. I began to doubt my ability to find another full-time job."**
>
>
>
> **Steven Nash,** Field training coordinator, on his layoff experience

Even though she was able to come to grips with the layoff and "roll with the punches," it hasn't left her untouched. "I lost part of my soul there," says Way, who after a two-month layoff joined Vitamin Shoppe Industries Inc. in North Bergen, N.J., as manager of application development.

The layoff certainly changed her professional outlook. "I don't try as hard as I used to," says Way. "I used to work 60-to-70-hour weeks and then do work on top of that. Now, I'll do my 50 and not make myself sick."

Layoffs are demoralizing under any circumstances, but handled badly, they can be even worse. In 1997, Glenis Nelson was told by his managers at Dun & Bradstreet Software that he had to train his replacement — an H-1B visa holder — if he wanted to receive his severance package.

Nelson, a five-time layoff victim during his 35-year IT career, says that was only one of many blows to his psyche. Like other laid-off IT workers, he couldn't always be fussy about interim employment. "You've got to keep working until you can find another job," he says. "It's tough to leave an $80,000-a-year job to flip hamburgers."

Each layoff wreaked havoc on his emotional mind-set. "I happen to be a diabetic, and I've been in tears not knowing if I'd be able to pay for my medication," says Nelson, now a senior application developer at Information Technology Inc. in Birmingham, Ala.

New Attitudes

Several IT professionals interviewed for this story said the layoff experience has soured them on a vocation they once loved. "What it comes down to is that we're all temps; there are no permanent employees," says Glenn Deles, a systems engineer at Talx Corp., a human resources and business process outsourcing provider in St. Louis.

Deles was laid off in April 2004 by Teralogix, a St. Louis-based IT services provider, after it was acquired by WebMD Inc. For the first two months after the deal was announced, Deles was told repeatedly that his job was safe. Then one day he was called into the company's HR office and let go.

Deles, who has been laid off four times in his 24 years as an IT professional, has tried to remain pragmatic about it. "There's no other choice," he says. "Being laid off is an impersonal thing. When you're told you no longer have a job, you don't know if it's because they don't like you or if it's a matter of finances."

Still, many people can't help but take it personally. Nelson, for example, admits that since his first layoff — in 1991, when his employer, C&S/Sovran Corp., was acquired by NCNB Corp. to form NationsBank — he has put up a wall. "I don't get involved with people like I used to," he says. "I probably never recovered from that layoff. It was like family."

Workers who are victimized by layoffs often go through the same type of grieving cycle experienced by those who have lost loved ones, says NYU's Wiesenfeld. Those cycles, noted by psychiatrist Elisabeth Kubler-Ross in her groundbreaking book *On Death and Dying*, include shock, denial, anger, depression and acceptance.

Way says that ultimately, what matters isn't what happens to you but whether you're able to get over it. "The most important thing that happens when you lose a job — particularly one that you like — is the ability to heal, which I did at my own pace," she says.

Nash says senior executives need to focus less on earnings targets and more on an organization's most important asset: its people. "One of the fallacies of laying people off is that 'it's not personal, it's just business,' " he says. "That's a lie. It's always personal."

Life After a Layoff

Visit our Web site to read related stories about layoff survivors and their new career paths.
www.computerworld.com/careers

Do you have a layoff story to share? Are you a manager wondering how to conduct staff reductions in the least hurtful way? Experts will be answering select reader questions online. Post yours at
www.computerworld.com/blogs/careerforum

MANAGERS' FORUM

WITH PAUL OLEN

I hope this monthly column will provide a lively exchange of ideas with IT managers. I'll do my best to answer your questions, and some of your responses will run alongside in "Readers Talk Back." Please send your questions, comments and critiques to me at pglen@c2-consulting.com.

Q Do you think it is necessary to move around in IT and gain experience in a variety of areas in order to move up, or should I specialize and develop in-depth knowledge in just one or two areas? Is it advisable to gain business unit experience in addition to IT experience?

I'd say it really depends on the career goals of the person who is asking the question.

More and more enlightened IT shops are developing parallel career ladders, one for management and another that's purely technical. People in these departments get to choose which path to follow and sometimes can hop from one to another after some experimentation. This way, technical people who don't want to manage don't run out of career advancement opportunities too early. They have the opportunity to continue to grow in value, be recognized for it and earn more without putting on the suit.

So the question really has to be answered differently depending on the direction that the person wants to go.

If someone's goal is to move up through the management ranks, I'd say that moving around and gaining business unit experience is more important than developing technical depth. No matter how technical someone is, once he chooses to make a leap to the management track, his primary value to the organization is no longer in his technical skills.

Once the person chooses the management role, his breadth of experience, provided that it has been digested and converted into knowledge and wisdom, will be much more important than his technical skills. As time goes on, his technical skills will atrophy anyway. (Yeah, I know that I just annoyed a bunch of you, but it's true.)

If the person wants to remain technical throughout his career, then technical depth becomes more important. But even within the purely technical ranks, moving around within IT and the business is still valuable.

Moving around in IT offers a person a much broader perspective to bring to bear on problems, even if he intends to remain relatively close to a technical home base over the long run. For example, architects who have spent time in user support are much more sensitive to issues of supportability, deployment, troubleshooting, work-arounds and upgradability than those who have never left the ivory tower. Data modelers who have spent time in business units better understand what they are modeling and can offer much richer advice than those who haven't.

In either case, I think that moving around is a great idea, so it's just a matter of priorities.

Q There is a long history of animosity between my user group and the IT department. I am now the liaison between the user organization and the IT department, and the sponsor is always upset with me. What can I do to improve the relationship?

Ah, fun. Who did you annoy to get this plum assignment? Actually, it may not be so bad.

We all like to think that we create our own positions and are in control of our successes and failures. But that's rarely completely true. Most of us take on jobs that others have held before us, and we live with their legacies for better or for worse. You may follow a goat, or you may follow a prince. Both paths have challenges, but the challenges are different.

In some ways, things could be worse. When you take over a failing relationship, there's nowhere for you to go but up. If your client has low expectations, it's easier to exceed them than it would be if he expected great things of you. If you were following a beloved figure who maintained a perfect working relationship, the bar would be set much higher for you.

Anyway, the first thing you've got to do is to figure out what's really going on with the sponsor. Here are the general possibilities:

1. He's really upset with you personally.
2. He's upset about the quality of products and services he is receiving from your department.
3. He's still upset about past relationships and/or service.
4. He's got a combination of some or all of the above.

If he's upset with you personally, you've got to figure out what you've done and try to make amends. Since you're new, this is the least likely scenario. Unless you've really gotten off on the wrong foot, chances are the problem is elsewhere.

If he's upset about the quality of current services, then you need to show some empathy for and understanding of his dissatisfaction. You need to acknowledge his feelings about the facts of the services. Then you need to work together to develop a strategy to get him more of what he wants. If he sees you as an ally, he can still be upset with the department but not with you.

If he's still upset about the past, there's not much you can do besides acknowledge the failures of your predecessors and the department and apologize. Try to get him past those old wounds and let him see that you are going to try to make things better. ▸

READERS TALK BACK

PAUL,

I can't agree with the reader's conclusions on "the project manager as politician" in the recent Managers' Forum in *Computerworld*. In fact, it appears to me that he has jumped to conclusions.

Certainly, it is true that a project leader should not necessarily need direct control (i.e., formal authority) over others in order to gain their cooperation. But what if he's not getting cooperation? Without knowing any details, how do we jump to the conclusion that the project leader's personal skills are deficient? Isn't it at least possible that there are other contributing factors? Conceivably, there could be good reasons why someone is failing to cooperate, or there could be bad ones, and those factors might have little to do with the project leader's personal skills.

In actual practice, management typically blames the project leader without even trying to look at facts. This doesn't solve the problem or contribute to its resolution. It merely provides the manager with a convenient excuse to dump the problem back in the project leader's lap.

Somehow, managers find a way to justify this as effective leadership. Common sense should tell us that it is actually dysfunctional. It is a do-nothing style of leadership that accomplishes absolutely nothing.

– WTR

Thanks for your thoughtful comments.

Of course, in this case, we don't have access to the actual source of the project leader's problems, but it's clear that [illegible] the opportunity to talk about the project manager as politician.

Even if a project manager is operating reasonably well in a very real political environment, it's still important to develop good skills to address the underlying issues and negotiate a reasonable solution.

While senior management should not necessarily blame a project leader for encountering resistance, it is fair to blame a project leader for failing to recognize it, resolve it or escalate the matter by asking for help.

PAUL OLEN

Attorney BENJAMIN R. BARNETT warns that CIOs must recognize IT's key role in the discovery process in corporate lawsuits.

SCOTT NEBAUER

ELECTRONIC DISCOVERY: Managing the Unmanageable

Concrete and common-sense steps that you and your IT team can take to effectively manage the size and cost of e-discovery

BY BENJAMIN R. BARNETT

IT MENTOR

THE E-MAIL or voice-mail message has a familiar and ominous tone: "This is (insert name of in-house counsel here) from the law department. It looks like there may be some litigation involving (insert product name). We don't have a copy of the complaint (or subpoena) yet, but we know we are going to have a pretty tight deadline for responding, and we will need to coordinate with your IT department. You may receive a call from (insert name of law firm you have never heard of before) in the next couple of days to discuss what we need to do in terms of data preservation and our response. If you have any questions, please call or shoot me an e-mail. Thanks very much and have a good day."

And so it begins. It will not be a good day. This message may be the call to arms in an electronic discovery battle that may materially affect your IT plans, projects, personnel and budget.

The critical qualifier is "may." The legal press is chock-full of articles, written by lawyers for lawyers, about how to manage e-discovery. Missing has been straightforward guidance for CIOs about their e-discovery management role. I hope to fill this gap by providing concrete and common-sense steps that you and your IT team can take to effectively manage the size and cost of e-discovery. The first step in this process is to understand some of the e-discovery rules of engagement.

RULE 1:
Managing e-discovery is now part of your job.

It may not be in your job description or part of your annual review, but like it or not, you and the IT department are the "e" in e-discovery. You know the data and the systems. You are uniquely qualified to evaluate the cost and complexity of converting corporate data to data for use in litigation. The simple fact is that you and your colleagues from Legal must hang together, or you will hang separately.

RULE 2:
E-discovery (for the most part) is a one-way street.

The relevance standards that govern discovery in civil litigation are fairly liberal. This means that your opponent can demand a wide range of informa-

tion that may or may not seem germane to you. This is not likely to change. Little is gained by railing against the unfairness, inequity or expense of the current system. So get educated (but see Rule 3) and get on with it.

RULE 3:

Legal landmarks in the e-discovery minefield are few and far between.

There are no universal legal standards that apply to e-discovery in federal and state civil cases. Although courts have recently started to address electronic discovery, some of these decisions are based on the facts of individual cases and can't — or shouldn't — become national standards. New federal rules that relate to e-discovery will become effective in December, but these appear to institutionalize, not limit, the process. In any event, no one knows now how federal courts will interpret these rules. In short, you must recognize that there may not be clear legal answers to some of the questions that you and your legal colleagues will face, and there are no off-the-shelf, one-size-fits-all solutions that will make all of your e-discovery worries go away.

RULE 4:

E-discovery is a standard arrow in the quiver of your company's opponents.

Like Willie Sutton, who robbed banks because that's where the money is, opposing counsel will target IT because that's where the discoverable information is. E-discovery can be a form of legal judo, where the size and complexity of your IT system will be used against you in an effort to justify sweeping demands for documents or data, depositions of IT personnel and the entry of Draconian discovery orders. The fight is coming, so you need to prepare.

RULE 5:

Adverse e-discovery decisions can have a material impact on you and your company.

National news coverage over the past four years regarding allegations of data destruction or data mismanagement involving Fortune 100 companies makes it clear that the risks associated with e-discovery can have a significant effect on a company and its counsel: criminal convictions, bankruptcy, punitive jury awards, negative publicity, government fines and people losing their jobs. Enough said.

Given all this good news — new job responsibilities, few existing standards, determined and coordinated opponents, and huge risks if things go badly — you might reasonably ask what you and your company can do to prepare.

The short answer is, plenty.

While it is tempting to be swayed by promises of deliverance from the e-discovery leviathan, one-stop shopping or off-the-shelf software rarely works because every company is different. The real solution lies in commonsense management methods built on planning, communication, execution and evaluation. In fact, in all likelihood, you already have the necessary expertise and resources at your disposal.

I offer no miracle cure for ridding your company of e-discovery ills. Rather, I've outlined steps below to start and guide a dialogue between the legal and IT departments so that together you can create and defend a legal discovery plan that works for your company.

1. Demand a seat at the table.

You can't manage e-discovery from the sidelines. IT must have a seat and a voice at the conference table where initial and ongoing discovery decisions are made. Input from IT will be invaluable in helping your company's senior management and attorneys understand the IT structure and the implications of e-discovery demands on the business. Once you have that seat and clear authority, you need to ...

2. Understand the litigation inside and out.

Information is power in e-discovery. You can't function as an equal team member or adviser unless you know what your company is up against. Remember, you're the expert. Immediately after notification of potential litigation, assemble your team and schedule an open-ended meeting (no one-hour limit, no BlackBerries) with your company's counsel to learn everything you can about the litigation. Your questions should cover all relevant areas and be exhaustive: Will this litigation involve a single case or thousands of cases? How many employees does it implicate? Which documents and data need to be preserved? What types of data are likely to be requested? How long will this go on? At this meeting, you also must be prepared to answer questions so that you can ...

3. Educate your attorneys.

Any misunderstanding between your legal and IT departments can benefit your opponents. To lessen this risk, make certain that you speak a common language and that your in-house and outside attorneys understand both your IT structure and how your IT processes can be affected by e-discovery. This may require multiple representatives who speak for the various components of your IT organization. This role of educator and adviser is both immediate (one can preserve data only if one knows where the data is) and ongoing (discovery is necessarily evolutionary as the parties learn more about a case). When you understand the litigation and your counsel understands your IT organization, you are both prepared to ...

4. Craft an overall discovery plan.

Armed with a mutual understanding of the looming litigation and your IT structure, your team should map out its global e-discovery plan for the preservation, collection, review and production of the relevant documents and data. This plan should not only ensure that your company meets its legal obligations, but also be commensurate with the potential scope of the litigation, reduce the burden on ongoing business operations, be cost-effective, be strategic in selecting the discovery battles to fight, and be aligned with the company's trial and public relations plan. Creating and regularly re-evaluating this plan will also give you a valuable opportunity to ...

5. Learn the players.

E-discovery in any significant litigation will involve in-house counsel, outside counsel and potentially a broad array of vendors. These individuals will effectively serve as your larger team. Solid team and individual relationships are critical to withstanding and overcoming the inherent pressure of litigation. Building relationships takes time and commitment, but investment in both will pay significant dividends in the long run. All of this effort can be undone, however, unless there is a process in place to ...

6. Communicate in real time.

Many mistakes in e-discovery are simply the result of poor communication: Data isn't preserved because the responsible IT staffers weren't told that it needed to be preserved, or a production deadline isn't met because counsel didn't understand or appreciate the complexity involved. While it's difficult to prevent such errors entirely, there must be a communication system in place so that everyone involved knows of litigation developments immediately. This communication plan should also include a decision-making body that can resolve any conflicts that arise within the e-discovery team.

By implementing these steps in a consistent and coordinated fashion, your IT team will be able to play its proper role in working with your company's counsel to help manage the risks and costs associated with electronic discovery. At that point, calls from your legal department concerning e-discovery will simply trigger your existing e-discovery plan — instead of the current dread — and that will make for a better day for both you and your company.

Barnett is a partner at Dechert LLP in Philadelphia who specializes in helping companies prepare for and manage electronic discovery. Contact him at benjamin.barnett@dechert.com.

KEY ELEMENTS OF A DISCOVERY PLAN

While each company is different, discussion of your e-discovery plan should cover at the least the following topics:

PRESERVATION OF DATA. You need to figure out what data you need to preserve, and get it done.

BACKUP TAPES. Tapes are for disaster recovery, but they are now also likely to be requested in e-discovery.

FORM OF PRODUCTION. Your production format should be consistent with emerging standards. You need to devise a defensible form of production (such as TIFF images with text files) that will be used across the board. You don't want to use case- or jurisdiction-specific formats.

NATIVE FILE PRODUCTION. Requests for production of native files are increasing. In fact, the new federal rules actually encourage such requests. This can be a huge challenge. Is it feasible for you? How will you respond to such a request?

PRIVILEGE PROTECTION. How will you coordinate with the legal department to protect the company's legal privileges?

PLAN DEFENSE. Who will explain and defend the e-discovery plan?

RECOVERY PLAN. What will you do when something, somewhere, goes wrong?

— BENJAMIN R. BARNETT

EXEC TRACK

Boushy Named Casino President

JOHN M. BOUSHY has been appointed president of Ameristar Casinos Inc. in Las Vegas. In this position, he will be responsible for leading operations, finance, human resources, marketing, IT, food and beverage services, administration, communications and entertainment and will participate in the company's pursuit of development opportunities. Previously, Boushy had a long career as a senior executive at Harrah's Entertainment Inc. He led Harrah's IT initiatives beginning in 1993 and served as CIO from 1995 to 2003, in addition to serving as senior vice president of brand operations and design and construction beginning in 1999. In 2004, he became chief integration officer for Caesars Entertainment Inc.

Gillingham Joins Mosaid Technologies

Kanata, Ontario-based semiconductor maker Mosaid Technologies Inc. announced that **PETER GILLINGHAM** will fill the new position of vice president and chief technology officer. Previously, he was vice president and general manager of the intellectual property division.

U.S. Education Dept. Appoints Vajda CIO

Secretary of Education Margaret Spellings has named **WILLIAM VAJDA** CIO at the U.S. Department of Education. Previously, Vajda held senior positions at the departments of Defense and the Treasury and in the private sector.

NASA Appoints McManus Acting CIO

JOHN MCMANUS has been named acting CIO at NASA, succeeding Patricia L. Dunnington. Previously, he served as the deputy CIO, CTO and chief architect for the Office of the CIO. McManus joined NASA from Bell Laboratories, where he served as vice president of the Software Technology Center.

PAUL M. INGEVALDSON

Security: It's the CIO's Job

ADMIT IT. You really don't know if your internal IT infrastructure is safe and secure.

Sure, your security staffers have assured you that they have it under control. What else are they going to say? But way deep down, you have this nagging question: "Could someone penetrate and disable our systems and networks?" This concern has been greatly increased by the intense regulatory focus in the wake of the passage of the Sarbanes-Oxley Act. And no wonder: There is probably no event in the area of IT that is more devastating to a company and more embarrassing to a CIO than a significant security breach.

I believe that most CIOs share this feeling of uncertainty. It's not that you don't trust your staff; it's just that you don't know for sure. You can admire your physical and biometric security, alarms and fire-abatement systems. You can rightfully claim that everything short of putting your hot sites and alternative data centers into bunkers was done appropriately.

PAUL M. INGEVALDSON retired as CIO at Ace Hardware Corp. in 2004 after 40 years in IT. Contact him at ingepi@aol.com.

But what about the possibility of a hacker penetrating your systems? The motivation for this type of attack could be competitive advantage, revenge on the part of a disgruntled employee or just free-floating malice.

Again, the question is, "Are we prepared?"

Your security staffers can assure you of their expertise and vigilance, but you can't really know your level of protection. What you do know is that when security firms do penetration testing to see if systems are safe, most of the time they get in.

I maintain that this kind of exposure is a lot more likely than fire, flood or a plane landing hard on your roof. This kind of risk can become reality at any time, despite any physical constraints that may be in place.

When I was a CIO, I felt I could survive a bug in a system, a hardware failure or a missed estimate. But I knew I would have a much tougher time overcoming a severe internal system breach.

Just consider the uproar caused by the recent security problems at the Department of Veterans Affairs. Security issues like those certainly used to keep me up at night.

Here's an action plan to mitigate some of these concerns:

Have regular meetings with your security staff to better understand the risks. The agenda should include worms, viruses, spyware and spam. This type of meeting has a number of benefits. The first is that it will enable you to become more aware of and conversant with the state of your security. You'll get to know your security people and better gauge their competency and loyalty. You'll be able to determine whether your security department is properly funded, given the perceived risks. Regular meetings will show the security group that you believe its role is critical to the company.

Meet with the representatives of your security vendors. This will have much the same effect on them as it does on your internal staff. Consider attending vendor security briefings or conferences. They will enhance your understanding while giving you a chance to meet some of those companies' senior executives.

Get familiar with your IT infrastructure security policy. If there isn't one, make sure one is created. The policy should cover all the infrastructure risks — both technological and human — and outline what is being done to minimize them. It should include rules regarding the removal of sensitive information on the hard drives of laptops. It should also document the recovery process that will go into effect if all of the safeguards fail.

Test your emergency response preparedness at least once a year. Evaluate the effectiveness of your assigned team, determine what needs to be done to improve the results, and do it.

Commission a penetration test that will give you an unbiased picture of your level of preparedness. Control this process. Be sure the test is designed to deliver unvarnished results, not what your staff thinks you want to hear.

At the conclusion of these five steps, you and your staff will have a much better understanding of your security defenses.

At the very least, should something bad happen, you'll be able to say, "I understand the problem, and here is what we are doing about it."

Remember, as CIO, you are responsible for the security of the IT infrastructure. Be sure you know how it works. Then get a good night's sleep.

WANT OUR OPINION?

For more columns and links to our archives go to: **www.computerworld.com/columns**

dtSearch® Terabyte Indexer

"Endless indexing is now a breeze" — *ComputerWorld*

dtSearch
Instantly Search Terabytes of Text
Desktop with Spider ($199)
Network with Spider (from $800)
Web with Spider (from $999)
Publish for CD/DVDs (from $2,500)
Engine for Win & .NET
Engine for Linux

- over two dozen indexed, unindexed, fielded data and full-text search options
- highlights hits in HTML, XML and PDF, while displaying links, formatting and images
- converts other file types (word processor, database, spreadsheet, email & attachments, ZIP, Unicode, etc.) to HTML for display with highlighted hits
- Spider supports static and dynamic Web content, with WYSWYG hit-highlighting
- optional API for C++, .NET, Java, SQL, etc. Ask about new .NET Spider API

Developer Quotes and Reviews

dtSearch vs. the competition: "dtSearch easily overpowered the document indexing and searching abilities of other solutions, especially against large volumes of documents"

Reliability: "dtSearch got the highest marks from our systems engineering folks that I've ever heard of"

Results: "customer response has been phenomenal"

"Bottom line: dtSearch manages a terabyte of text in a single index and returns results in less than a second" — *InfoWorld*

"The most powerful document search tool on the market" — *Wired Mag.*

"For combing through large amounts of data," dtSearch "leads the market" — *Network Computing*

"Blindingly fast" — *Computer Forensics: Incident Response Essentials*

"Covers all data sources ... powerful Web-based engines" — *eWEEK*

"Searches at blazing speeds" — *Computer Reseller News Test Center*

For hundreds more reviews and developer case studies, see www.dtsearch.com

Contact dtSearch for fully-functional evaluations

The Smart Choice for Text Retrieval® since 1991

1-800-IT-FINDS • www.dtsearch.com

a new era of VoIP analysis

You convinced management to deploy VoIP.

Now ensure that it will run smoothly.

Rely on Network Instruments' Observer to help keep VoIP communications running at optimal performance.

Learn more.
1-800-566-0919
networkinstruments.com/voip

NETWORK® INSTRUMENTS

©2006 Network Instruments, LLC. All rights reserved. Network Instruments, Observer, and all associated logos are trademarks or registered trademarks of Network Instruments, LLC.

Emory University School of Medicine is seeking to fill two (2) Senior Applications Developer/Analyst positions.

Job Description: Plans, develops, tests, and documents computer programs applying knowledge of programming techniques and computer systems. Consults with appropriate staff/customers to develop requirements and specifications for new/modified programs such as financial and administrative applications. Evaluates requirements and analyzes specifications to determine feasibility and compatibility with existing systems and estimates cost and time required to complete development. Prepares flowcharts and diagrams to illustrate program sequences using languages such as Unified Modeling Language (UML) and computer-aided software tools such as Rational Rose and Microsoft Visio. Develops workflow using Object Oriented Design and Programming (OOD and OOP), design patterns and web based technologies, and submits the plan for approval. Develops code and user interfaces using computer languages such as OOP languages (C++ and Java) and server-side scripting (such as Coldfusion, ASP, .NET, JSP) and relational databases (such as Oracle). Oversees client and server software installation such as operating systems (Windows and UNIX) and application software. Writes program documentation to describe the program's logic & code. Writes the user manual to describe the installation & use of the program relying on experience with software engineering standards based on SEI/CMM or ISO 9001 methodologies. Implements the developed applications and provides customer support for applications. Works to "debug" the program and replaces or modifies code to correct errors and monitor software performance. Must have excellent verbal and written communication skills.

Required Qualifications:
Bachelor's degree in Computer Science or related field with four years of information technology experience or a Masters degree in Computer Science or related field with two years of information technology experience.

Send resume to:
Ms. Julia McDowell
Emory University School of Medicine
Office of Information Technology Services (ITS)
Mail Stop: 1256/001/2IT
Atlanta, GA 30322

Sr. UNIX & Oracle Systems Engineer needed for provider of digital wireless communications co. in VA. Duties include: IT operations support, prob. resolution, system monitoring, capacity planning, overseeing operations admin. activities, system forecasts & reconfigs, support UNIX, Oracle Database & Oracle Financial Apps, manage IT Security, & mngmt. of external contractors & projects. Must have B.S. degree in IT or related field. Education equivalent may be met by combo. of degrees, or education & 5 yrs. progressive exp. in job duties described above or in any comp. related position req'd. Exp. may be gained before, during, or after degree. Resumes req'd. Send to: NII Holdings, Inc., attn: HR, 10700 Parkridge Blvd., Ste. 600, Reston, VA 20191.

Computer Systems Analyst (Functional) (National Placement out of Sterling, VA – Mult positions). Capable of IT Systems Business Analysis, Requirements Gathering Implementation and Development using Oracle/Access, RUP, UML, SQL, and MS Visio. Also able to perform testing and QA. MS degree in Business Admin/Finance and 3 yrs of related exp or equivalent. Able to relocate. 9-5, 40 hwk. Ref FSA100 – CW & send resume to Asta CRS, Inc. 107 Carpenter Drive, Suite 120, Sterling, VA 20164 or careers@astacrs.com.

Senior Software Engineer (National Placement out of Sterling, VA – Mult Positions). Design, develop, install and administer Java and Oracle Applications. MS or equiv in Computers and 3yrs related exp. Skills in Oracle, JAVA, RMI, EJB, ERWIN, PL/SQL (including performance tuning) & SQL*Loader needed. Able to relocate. 9-5, 40 hwk. Ref ORJ100 – CW & send resume to Asta CRS, Inc. 107 Carpenter Drive, Suite 120, Sterling, VA 20164 or careers@astacrs.com

Software Engineer (National Placement out of Sterling, VA-Mult positions) 1 yr exp in development, analysis & testing on J2EE Technologies &VB.Net Environments. BS or equivalent in Computer Science. Some coursework in Computer Architecture & Development. Java, C++, Rational Suite, WINCVS, Oracle, SQL, PL/SQL, PERL, UNIX Testing. Able to relocate. 9-5, 40 hwk. Ref QA101 – CW and send resume to Asta CRS, Inc. 107 Carpenter Drive, Suite 120, Sterling, VA 20164 or careers@astacrs.com

---

Manager/Team Lead in Back Office Technology. Chicago, IL. Citadel Investment Group is seeking a qualified candidate to be responsible for the definition and collection of reconciliation & control logic for various financial products. Developing eGlue reports to Reconciliation & Control functions business needs that can't feasibly or cost effectively be executed within Smartstream. C++, Perl, and SQL Software Development to improve Reconciliation & Control Infrastructure. Deliver Reconciliation & Control Functionality by configuring & developing within Smartstream TLM system. Supporting the Production Smartstream TLM infrastructure, ensuring timely reconciliation of the firms global transactions, positions, cash flows, and balances. Qualifications include a Bachelors' degree in Computer Science, Information Science, an Engineering discipline or related field or the foreign equivalent. Must have four (4) years of experience in full software life cycle development. Must have two (2) years experience working with the reconciliation process for Securities transactions. Must also have one (1) year experience in Smartstream's TLM product. Must have experience in the following: Perl; SQL; C++ on UNIX; Javascript; UNIX scripting; and Sybase ASE database. Qualified candidates should submit a cover letter and resume, referencing job order R-0050, to: itjobs0050@citadelgroup.com. Principals only need apply.

Require Computer Professional

Multiple IT Related Positions (National Placement out of Pittsburgh, PA). Able to custom design multi-tier, large scale, object oriented programming applications using J2EE and .NET Environment. Candidates may qualify for either job listed below:

A) Computer Systems Analyst: Bachelors Degree or equivalent in Computers, Information Systems or Engineering and five years related experience or Masters Degree or equivalent and two years related experience.

1. Ref#QA-100: Quality Assurance Analyst must also have skills including Quick Test Pro, Loadrunner, Rational Suite, Rational Robot, ClearQuest, RUP and Empirix.

2. Ref#BA-100: Business Analyst must also have skills in RUP, UML, Derivatives, Fixed Income, Risk Mgmt, Portfolio Analysis, SCM, ORM, CMBS, Tuxedo, and Mainframe.

Must be able to relocate to different client sites as needed. 9-5, 40 hrs/wk. Please use reference **Ref#** when applying for job you are interested in and Send resumes to

Attn: HR, RIZ Global Technologies, Inc., 340 Butler Street, Pittsburgh, PA 15223 or email resume to hr@rizglobal.com.

Principal Consultant
Petroleum Place Energy Solutions seeks resumes for the position of Principal Consultant to work with our Professional Services team out of our Houston, Texas office. Provide post-sale consulting services for implementation of upstream oil and gas software applications including production, revenue, financial, accounting, and land administration. Consulting services include business process engineering and software integration. Responsible for solving technical issues and understanding the client's business environment and practices. Design specifications for customization of software, engage in data conversion from legacy applications, and provide training and user support. Position involves extensive travel to client sites across the U.S. Three years of experience required in the job offered. Send your resume to Y. Macklin, Petroleum Place Energy Solutions, Human Resources, 216 16th Street, Suite 1700, Denver, CO 80202 and refer to job no. 2006-134.

Solution Architect
For analyzing, architecting, designing, developing, testing, implementing, maintaining & supporting functional requirements of multi-tier enterprise application architectures, solutions and projects. Req.: B.S. degree (or foreign equiv.) in Comp. Eng., Mechanical Engineering or a closely related field, five years of progressive software dev/prog exp, prof in J2EE, SOA, Oracle, SQL Server, Web Logic, JRun, Sonic MQ, XML, XSL under Windows & UNIX operating systems, extensive travel on assignment to various unanticipated client sites within the U.S. Send resume to: Kavitha Ramanna, Novedea Systems, Inc., 2050 N. Collins Blvd., #119, Richardson, TX 75080. Ref Job: TXKR0608.

Quality Assurance Engineers for Greenbelt,MD office: Create test plans & test cases; Develop automated tests using WinRunner, TestDirector, LoadRunner; Execute, Maintain and Manage test efforts; Must have working knowledge of SDLC Testing Methodologies. Masters or Equivalent** req'd in Computers, Engineering, math or related field of study + 1 yr of related exp. (**Equivalent: Bachelors or Equivalent + 5 years of progressive related work exp). Multiple positions available. May be relocated to various unanticipated locations throughout the United States. 40 hrs/Wk. Must have legal authority to work permanently in the U.S. Send resume to wpjobs2@issi-software.com or HR Manager, International Software Systems Inc., 7337 Hanover Parkway, Suite.A, Greenbelt, MD 20770.

Senior V.P. of Professional Services: Petroleum Place Energy Solutions LP seeks applicants for the position of Senior V.P. of Professional Services in Houston, TX. Full profit and loss responsibility for Professional Services Division for company involved in the development and implementation of upstream oil and gas software applications including production, revenue, financial accounting, and land administration. Requirements include two years experience in the job offered or three years of experience as Director of IT Consulting in oil and gas industry and expertise in upstream oil and gas accounting and software including production, revenue, financial, and land management. Experience with implementation of Enterprise Resource Planning (ERP) applications (Oracle or SAP). Respond by resume to Lisa Hutchens, Petroleum Place Energy Solutions, 216 Sixteenth Street, Suite 1700, Denver, CO 80202.

KPK Technologies Inc has immediate openings for IT consultants to fill various positions to customize applications, database system, software using Java, DB2, Oracle, VB, Weblogic/Websphere, etc. Good wages. Travel required. Please contact Info@kpktech.com. EOE.

Excellent IT Solutions seeks software engineers, analysts, DBA to customize applications using special tools: Oracle, PL-SQL, etc. Require MS or BS with 1-5yrs IT exp. Send resume to 36150 Dequindre, #510, Sterling Heights, Mi 48310. Travel required.

SAT Information Systems seeks software engineer, IT Analyst, DAB, Administrator to customize applications using special tools such as Oracle, VB, Java, SAP, PeopleSoft, etc. Min is MS or BS with 1-5yr exp. Job sites various. Please send resumes to 40 Englewood Dr, Ste G, Orion, MI 48359.

DP Powerhouse seeks Software Engineers or Analysts to customize Oracle applications, design data warehouse and other web-based applications using JDK, Java2. Must have MS or BS+5yr ITexp. Travel may be required. Please contact jobs@dppinc.com. EOE

DavLong Business Solutions, L.L.C., a leader in integrated electronic medical records & practice management systems, seeks an experienced Systems Analyst for its Houston, TX office to configure, implement & support network applications & operating systems. Email resume to: dlong@davlong.com. Put job code DBS-SA01 in the subject line.

Computer Professionals needed (New York) NY based IT firm,

Jr. Level Positions Programmer Analysts, Software Engineers, Systems Analysts, to Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions.

Apply with 2 copies of resume to Amitronix Inc, 246 5th Ave, Suite 602, New York, NY-10001

Computer System Administrator
Manage wholesale LAN, WAN, Web. Pos. in Brooklyn, NY. BS in computer science+2-4 yrs. exp. Mail resume to Amersino Marketing Group at 161 Gardner Ave., Brooklyn, NY 10461.

Software Engineer w/Masters in Comp Sci or Engg or Math & 1 yr exp to research, analyze, dsgn & dvlp client server applics using Oracle, SQL Server, Data Stage, VB, Java, C, C++ & PL/SQL. Dsgn d/base & data warehouse systms. Dsgn & dvlp user reports using Cognos, ASP, VB Script, Java Script in Windows & Unix envrmts. Exp prior to completion of Masters acceptable. Mail resumes to: Empower Technology Solutions Inc., 196 Princeton Hightstown Rd, Bldg. #2, Ste 14, West Windsor, NJ 08550. Job loc: West Windsor, NJ or in any unanticipated loc in U.S.

Multiple positions available, Stamford, CT: Programmer Analyst, Software Quality Assurance Analyst, Senior J2EE Consultant, Senior Java Programmer. Reply to: Nutech Information Systems, Inc., 1010 Summer Street, #203 Stamford, CT 06905

Are you seeking IT Talent?

Computerworld IT Careers provides recruitment management and branding resources that position your company in front of in-demand professionals who are prospective candidates for your IT positions.

Find out how you can reach over 1,200,000 IT professionals.

Call today for details!
800-762-2977

COMPUTERWORLD
IT CAREERS

COMPUTERWORLD HEADQUARTERS

One Speen Street, P.O. Box 9171
Framingham, MA 01701-9171
Phone: (508) 879-0700
Fax: (508) 875-4394

PRESIDENT/PUBLISHER/CEO
Matthew J. Sweeney
(508) 271-7100

EXECUTIVE ASSISTANT TO CEO/ CORPORATE COMMUNICATIONS MANAGER
Laureen Austermann
(508) 820-8522

VICE PRESIDENT/ GENERAL MANAGER ONLINE
Martha Connors
(508) 620-7700

VICE PRESIDENT/MARKETING
Matt Duffy
(508) 820-8145

VICE PRESIDENT/ HUMAN RESOURCES
Julie Lynch
(508) 820-8162

EXECUTIVE VICE PRESIDENT/ STRATEGIC PROGRAMS
Ronald L. Milton
(508) 820-8661

VICE PRESIDENT/ONLINE SALES
Gregg Pinsky
(508) 271-8013

EXECUTIVE VICE PRESIDENT/COO
Matthew C. Smith
(508) 820-8102

VICE PRESIDENT/ EDITOR IN CHIEF
Don Tennant
(508) 620-7714

VICE PRESIDENT/CIRCULATION
Debbie Winders
(508) 820-8193

CIRCULATION
Sr. Circulation Specialist/Diana Turco, (508) 820-8167

PRODUCTION
Vice President Production/Carolyn Medeiros; Production Manager/Kim Pennett; Print Display Advertising: (508) 820-8232, Fax: (508) 879-0446; DISTRIBUTION: Director of Distribution and Postal Affairs/Bob Wescott

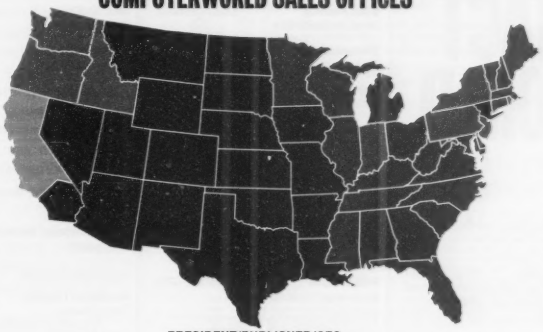
STRATEGIC PROGRAMS AND EVENTS
Vice President Strategic Initiatives/Leo Leger; Vice President Business Development/John Amato; Senior Director, Event Sponsorship Sales/Ann Harris; Vice President, Event Marketing and Conference Programs/Derek Hulitzky; Director, Event Management/Michael Meleedy; Program Director, Computerworld Honors/Sandy Weill; Business Development Specialist/Colin Longval; Business Development Specialist/Chris Leger; Business Development Specialist/Amy McLellan; Marketing Manager/Timothy Johnson; Conference Manager/Nancy Felsheim; Sr. Marketing Specialist/Duncan Newell; Executive Programs Specialist-Computerworld Honors/Deborah Lee; Executive Programs Specialist-Executive Assistant/ Kelly McGill; Custom Events Specialist/Jean Lee; Operations Specialist/Chris Johnson; Web Development Specialist/Michelle Remeny; Customer Service Coordinator/Josh Ryan;Audience Development Coordinator/Shari Ebb, One Speen Street, Box 9171, Framingham, MA 01701-9171, (508) 879-0700, Fax: (508) 628-8524

ONLINE ADVERTISING
Director of Online Sales/Sean Weglage, (415) 978-3314, Fax: (415) 543-8010; Online Sales Manager, East Coast/James Kalbach, (610) 971-1588; Online Account Executive/April Hughes, (415) 978-3311, Fax: (415) 543-8010; Online Account Executive/Matthew Wintringham, (508) 270-3882, Fax: (508) 270-3882; Senior Account Services Manager/Bill Rigby, (508) 820-8111, Fax: (508) 270-3882; Online Account Services Specialist/Kathryn Goryl, (508) 620-7760, Fax: (508) 270-3882; Online Sales Assistant/Kathy Snow (508) 270-7112; One Speen Street, Box 9171, Framingham, MA 01701-9171, Fax: (508) 270-3882

IT CAREERS ADVERTISING SALES OFFICE
Director of Sales/Laura Wilkinson, (847) 441-8877, Fax: (847) 441-8878; One Speen Street, Framingham, MA 01701

LIST RENTAL
POSTAL: Rich Green, (508) 370-0832, e-mail: rgreen @idglist.com. E-Mail: Christine Cahill, (508) 370-0808, e-mail: ccahill@idglist.com. MAILING ADDRESS: IDG List Services, P.O. Box 9151, Framingham, MA 01701-9151, Fax: (508) 370-0020

COMPUTERWORLD SALES OFFICES



PRESIDENT/PUBLISHER/CEO
Matthew J. Sweeney
(508) 271-7100
Fax: (508) 270-3882

SALES INTEGRATION DIRECTOR
Laurie Marinone
(508) 628-4823
Fax: (508) 270-3882

NORTHWESTERN STATES
ACCOUNT DIRECTOR: Jim Barrett (415) 978-3306, ACCOUNT EXECUTIVE: Chris Da Rosa (415) 978-3304, 501 Second Street, Suite 114, San Francisco, CA 94107, Fax: (415) 543-8010

BAY AREA
ACCOUNT DIRECTORS: Jim Barrett (415) 978-3306, Sara Culley (415) 978-3307; ACCOUNT EXECUTIVES: Chris Da Rosa (415) 978-3304, Emmie Hung (415) 978-3308, 501 Second Street, Suite 114, San Francisco, CA 94107, Fax: (415) 543-8010

SOUTHWESTERN STATES
ACCOUNT DIRECTOR: Bill Hanck (949) 442-4006; ACCOUNT EXECUTIVE: Jean Dellarobba (949) 442-4053, 19200 Von Karman Avenue, Suite 360, Irvine, CA 92612, Fax: (949) 476-8724

EASTERN CENTRAL STATES/ INDIANA
ACCOUNT DIRECTOR: Peter Mayer (201) 634-2324; ACCOUNT EXECUTIVE: John Radzniak (201) 634-2323, 650 From Road - 2nd Floor, Paramus, NJ 07652, Fax: (201) 634-9289

CENTRAL STATES
ACCOUNT DIRECTOR: Bill Hanck (949) 442-4006; ACCOUNT EXECUTIVE: Jean Dellarobba (949) 442-4053, 19200 Von Karman Avenue, Suite 360, Irvine, CA 92612, Fax: (949) 476-8724

NEW ENGLAND STATES
ACCOUNT MANAGER: Deborah Crimmings (508) 271-7110; SALES ASSOCIATE: Jess Roman (508) 271-7108, One Speen Street, Framingham, MA 01701, Fax: (508) 270-3882

METRO NEW YORK
ACCOUNT DIRECTOR: Peter Mayer (201) 634-2324; ACCOUNT EXECUTIVE: John Radzniak (201) 634-2323, 650 From Road - 2nd Floor, Paramus, NJ 07652, Fax: (201) 634-9289

SOUTHEASTERN STATES
ACCOUNT DIRECTOR: Lisa Ladle-Wallace (904) 284-4972, 5242 River Park Villas Dr., St. Augustine, FL 32092, Fax: (800) 779-8622; SALES ASSOCIATE: Jess Roman (508) 271-7108, One Speen Street, Framingham, MA 01701, Fax: (508) 270-3882

ADVERTISER'S INDEX

American Power Conversion 9
www.apcc.com
888-289-APCC

Best Practices in Infrastructure Management Awards Program 33

CDW Corporation 12-13
www.cdw.com

Cingular 5
www.cingular.com

dtSearch 41
www.dtsearch.com

ESS Data Recovery Labs 41
www.savemyfiles.com

Hewlett-Packard 19
www.hp.com

IBM Cross Server 2-3, 47
www.ibm.com

IBM Software 25, 27, 29
www.ibm.com

Infrastructure Management World 17
www.imworldusa.com

Intel 22
www.intel.com

InterSystems Ensemble 15
www.intersystems.com

IT Management Summit 34
www.itmanagementsummit.com

NEC 11
www.necus.com/security

Network Instruments 41
networkinstruments.com/voip

Oracle Corp. 48
www.oracle.com

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

INTERNATIONAL DATA GROUP

CHAIRMAN OF THE BOARD
Patrick J. McGovern

PRESIDENT, IDG COMMUNICATIONS
Bob Carrigan

COMPUTERWORLD is a business unit of IDG, the world's leading technology media, research and event company. IDG publishes more than 300 magazines and newspapers and offers online users the largest network of technology-specific sites around the world through IDG.net (www.idg.net), which comprises more than 330 targeted Web sites in 80 countries. IDG is also a leading producer of 168 computer-related events worldwide, and IDG's research company, IDC, provides global market intelligence and advice through 51 offices in 43 countries. Company information is available at www.idg.com.

IDG

Have a problem with your Computerworld subscription?

We want to solve it to your complete satisfaction, and we want to do it fast.
Please write to: **Computerworld, P.O. Box 3500, Northbrook, IL 60065-3500.**

Your magazine subscription label is a valuable source of information for you and us. You can help us by attaching your magazine label here, or copy your name, address, and coded line as it appears on your label. Send this along with your correspondence.

ADDRESS CHANGES OR OTHER CHANGES TO YOUR SUBSCRIPTION
All address changes, title changes, etc. should be accompanied by your address label, if possible, or by a copy of the information that appears on the label, including the coded line.

YOUR NEW ADDRESS GOES HERE: **ADDRESS SHOWN:** ❑ Home ❑ Business

NAME
TITLE COMPANY
ADDRESS
CITY STATE ZIP

OTHER QUESTIONS AND PROBLEMS
It is better to write us concerning your problem and include the magazine label. Also, address changes are handled more efficiently by mail. However, should you need to reach us quickly, the following toll-free number is available: **(888) 559-7327 Outside U.S. call (847) 559-7322.**
Internet address: cw@omeda.com

COMPUTERWORLD allows advertisers and other companies to use its mailing list for selected offers we feel would be of interest to you. We screen these offers carefully. If you do not want to remain on the promotion list, please write to the following address – COMPUTERWORLD, Circulation Department, One Speen Street, Framingham, MA 01701.

NAME
TITLE COMPANY
ADDRESS
CITY

HOW TO CONTACT COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Don Tennant (508) 620-7714
Editor in chief

Mitch Betts (301) 262-8243
Executive editor

Julia King (610) 532-7599
Executive editor, events

DEPARTMENT EDITORS

Craig Stedman (508) 820-8120
News editor

Mike Bucken (508) 820-8562
Assistant News editor

Tommy Peterson (508) 620-7729
Technology editor

Kathleen Melymuka (508) 820-8118
Management editor

REPORTERS

Sharon Fisher (208) 922-5833
Storage; disaster recovery and business continuity

Matt Hamblen (508) 820-8567
Networking; mobile/wireless; network/systems management

Heather Havenstein (919) 386-0381
Business intelligence; application development; Web services; application server software; health care industry

Eric Lai (425) 367-4359
Windows, Linux, desktop applications, databases, financial services industry

Linda Rosencrance (508) 628-4734
General assignment; transportation and automotive industries

Carol Sliwa (508) 628-4731
National correspon dent

Marc L. Songini (508) 820-8182
ERP, supply chain and CRM applications; RFID; e-voting; retail, food and agribusiness industries

Patrick Thibodeau (202) 333-2448
Enterprise systems; Unix; outsourcing and immigration; antitrust issues

Jaikumar Vijayan (630) 978-8390
Corporate security/privacy issues; related legislation and regulations

Todd R. Weiss (717) 560-5255
General assignment; open-source community; intellectual property; messaging/collaboration

FEATURES

Ellen Fanning (508) 820-8204
Special projects editor

Thomas Hoffman (845) 988-9630
National correspondent

Robert L. Mitchell (508) 820-8177
National correspondent

Mark Hall (503) 391-1158
Editor at large

Gary Anthes (703) 536-9233
National correspondent

Julia King (610) 532-7599
National correspondent

OPINIONS

Frank Hayes (503) 252-0100
Senior news columnist

COMPUTERWORLD.COM

Scot Finnie (508) 628-4868
Online editorial director

Ian Lamont (508) 820-8187
Senior online projects editor

Joyce Carpenter (508) 820-8161
Online projects editor

Sharon Machlis (508) 820-8231
Managing editor/online

Ken Mingis (508) 820-8545
Online news editor

Marian Prokop (508) 620-7717
Online editor at large/Networking channel editor

David Ramel (508) 820-8269
E-mail newsletters/Networking channel editor

Lucas Mearian (508) 820-8215
Storage channel editor

Angela Gunn (206) 388-2508
Security channel editor

RESEARCH

Mari Keefe
Research manager

Gussie Wilson
Research associate

COPY DESK

Michele Lee DeFilippo (508) 820-8126
Managing editor/production

Bob Rawson (508) 271-8015
Assistant managing editor/production

Eugene Demaitre, Monica Sambataro
Senior copy editors

Carla Dempsey, Donna Sussman
Copy editors

GRAPHIC DESIGN

Stephanie Faucher (508) 820-8235
Design director

April O'Connor
Art director

Owen Edwards
Associate art director

ADMINISTRATIVE SUPPORT

Linda Gorgone (508) 820-8176
Office manager

CONTRIBUTING EDITOR

Jamie Eckle (617) 596-1873
Opinions

CONTRIBUTING COLUMNISTS

Michael Gartenberg, Paul Glen, Barbara Gomolski, John Halamka, Thornton A. May, Curt Monash, David Moschella, Bart Perkins, Virginia Robbins, Bruce A. Stewart

CONTRIBUTING WRITERS

Mary Brandel, Stacy Collett, Russell Kay, Mary K. Pratt, Drew Robb

TELEPHONE/FAX

Main phone number (508) 879-0700
All editors unless otherwise noted below.
Main fax number (508) 875-8931
24-hour news tip line (508) 620-7716

E-MAIL

- Our Web address is www.computerworld.com.
- Staff members' e-mail follows this form: firstname_lastname@computerworld.com.
- For IDG News Service correspondents: firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to: letters@computerworld.com. Include your address and telephone number.

MAIL ADDRESS

PO Box 9171, 1 Speen Street, Framingham, Mass. 01701

SUBSCRIPTIONS/BACK ISSUES

Subscription rates:
- U.S., $99.99/year
- Canada, $130/year
- Central and South America, $250/year
- All others, $295/year

Phone (888) 559-7327
E-mail cw@omeda.com
Back issues (888) 559-7327

REPRINTS/PERMISSIONS

Contact Erik Eberz
Phone (717) 399-1900, ext. 150
E-mail computerworld@reprintbuyer.com
Visit www.reprintbuyer.com to obtain quotes and order reprints online.

COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at **www.computerworld.com**

ACCOR NORTH AMERICA 24
ACE HARDWARE CORP. 40
ADVANCED MICRO DEVICES INC. 10, 16
AMERICAN HEALTH INFORMATION COMMUNITY 7
AMERISTAR CASINOS INC. 40
AOL LLC 1, 14
APPLE COMPUTER INC. 6, 10
ARROYO VIDEO SOLUTIONS INC. 8
AUTO-DESK INC. 6
BAYLOR UNIVERSITY 7, 14
BEA SYSTEMS INC. 8
BEAUMONT HOME CARE 14
BELL LABORATORIES 40
BLUECROSS BLUESHIELD OF TENNESSEE INC. 6
BORLAND SOFTWARE CORP. 10
BT RADIANZ 14
BURTON GROUP 23
CALIFORNIA INSTITUTE OF TECHNOLOGY 30
CALIFORNIA STATE UNIVERSITY 6, 30
CAREGROUP HEALTHCARE SYSTEM 21
CELLULAR TELECOMMUNICATIONS & INTERNET ASSOCIATION 16
CENTERIS CORP. 32
CENTERS FOR MEDICARE AND MEDICAID SERVICES 7
CEREBRA INC. 8
CHECK POINT SOFTWARE TECHNOLOGIES LTD. 32
CHINA MOBILE LTD. 16
CIPHERTRUST INC. 32
CISCO SYSTEMS INC. 7, 8, 32, 46
CITRIX SYSTEMS INC. 6
CIVITIUM LLC 12
COMPUTER SCIENCES CORP. 20
CONSUL RISK MANAGEMENT INC. 24
CORPORATION FOR EDUCATION NETWORK INITIATIVES IN CALIFORNIA 30
CROSSTEC CORP. 31
DECHERT LLP 39
DELL INC. 6, 10, 14, 16
DEMANDBASE INC. 18
DISABILITY POLICY CONSORTIUM 45
DOMESTIC & GENERAL GROUP PLC 6
DUN & BRADSTREET SOFTWARE 36
EEYE DIGITAL SECURITY INC. 6
ELECTRONIC DATA SYSTEMS CORP. 6
EMC CORP. 13, 24, 32
ENTERASYS NETWORKS INC. 7
ENTERPRISE STRATEGY GROUP INC. 7
ETHEREAL INC. 31
FLASHLINE INC. 8
FORRESTER RESEARCH INC. 7
FORTUNECITY.COM INC. 13
FRANCISCO PARTNERS MANAGEMENT LLC 32
FREESCALE SEMICONDUCTOR INC. 16
FUJITSU LTD. 8
GARTNER INC. 6, 7, 14, 23
GLOBAL 360 INC. 32
GOOGLE INC. 18
GUARDIUM INC. 24
GUCCI GROUP NV 36
HARRAH'S ENTERTAINMENT INC. 40
HARRIS INTERACTIVE INC. 10
HARVARD CLINICAL RESEARCH INSTITUTE 21
HARVARD MEDICAL SCHOOL 21
HEALTHCARE INFORMATION AND MANAGEMENT SYSTEMS SOCIETY 7
HEWLETT-PACKARD CO. 20
HITACHI MAXELL LTD. 10
HOUSEHOLD FINANCE CORP. 36
IBM GLOBAL SERVICES 7
IBM 6, 7, 8, 10, 21, 32
IDC 26, 28
IDEALOGICA INC. 23
IMPERVA INC. 24
INFORMATION TECHNOLOGY INC. 36
INFOSYS TECHNOLOGIES LTD. 16
INGRIAN NETWORKS INC. 24
INTEL CORP. 6, 10, 21, 26
INTERNATIONAL STANDARDS ORGANIZATION 45
INTERNET SECURITY SYSTEMS INC. 7
INTERNET2 30
IPLOCKS INC. 24
J.B. HANAUER & CO. 7
JAPANESE NATIONAL POLICE AGENCY 16
JUNIPER NETWORKS INC. 7, 21
KIEDEN CORP. 18
KOREA FAIR TRADE COMMISSION 16
LEADING EDGE FORUM 20
LENOVO GROUP LTD. 6
LEVEL 3 COMMUNICATIONS INC. 30
LOGICACMG PLC 16
LOYALTY LAB INC. 23
LUMIGENT TECHNOLOGIES INC. 24
MANDIANT 31
MASSACHUSETTS OFFICE ON DISABILITY 45
MAXELL CORPORATION OF AMERICA 10
MCI INC. 30
MERCURY INTERACTIVE CORP. 20
MICROSOFT CORP. 1, 6, 8, 16, 21, 26, 31, 32, 45
MICROSOFT RESEARCH 16
MOSAID TECHNOLOGIES INC. 40
NASA 40
NATIONAL LAMBDARAIL 30
NATIONAL SCIENCE FOUNDATION 30
NCIPHER CORP. 24
NETDIMENSIONS LTD. 32
NETSUITE INC. 18
NETWORK APPLIANCE INC. 6, 13, 28
NEW ENGLAND HEALTH ELECTRONIC DATA INTERCHANGE NETWORK 21
NEW YORK UNIVERSITY 36
NEXT GENERATION INTERNET 30
NORTEL NETWORKS CORP. 16
NSTAR ELECTRIC & GAS CORP. 28
NUCLEUS RESEARCH INC. 18
NUOVA SYSTEMS INC. 8
OHIO UNIVERSITY 1, 14
ONSITOR INC. 13
ORACLE CORP. 6, 12, 24, 32
ORGANIZATION FOR THE ADVANCEMENT OF STRUCTURED INFORMATION STANDARDS 45
PENNSYLVANIA STATE UNIVERSITY 8
PRICEWATERHOUSECOOPERS 7
PROTEGRITY CORP. 24
PUND-IT INC. 6
QUALYS INC. 23
QWEST COMMUNICATIONS INTERNATIONAL INC. 30
RED HAT INC. 21, 32
RSA SECURITY INC. 24, 32
SALESFORCE.COM INC. 18
SAMSUNG ELECTRONICS CO. 28
SAMSUNG SEMICONDUCTOR INC. 28, 28
SAP AG 32
SCIENTIFIC-ATLANTA INC. 8
SCOTT & SCOTT LLP 14
SEAGATE TECHNOLOGY LLC 28
SECURE COMPUTING CORP. 32
SECUREWORKS 46
SHENZHEN HASEE COMPUTER CO. 16
SKILLSOFT PLC 32
SOFTWARE AG 8
SOPHOSWALL INC. 32
SONY CORP. 28
SONY ENERGY DEVICES CORP. 6
SOPHOS PLC 10
STANFORD UNIVERSITY 30
SUN MICROSYSTEMS INC. 32, 45
SUNGARD AVAILABILITY SERVICES 10
SUNGARD DATA SYSTEMS INC. 10
SUSE LINUX AG 32
SYMANTEC CORP. 32
TALX CORP. 36
TASMAN NETWORKS INC. 16
TATA CONSULTANCY SERVICES LTD. 16
THE FEDORA PROJECT 32
THE HENSSLER FINANCIAL GROUP 14
THE OPENDOCUMENT FOUNDATION INC. 45
THE STORAGEIO GROUP 13
TIME WARNER INC. 14
TIZOR SYSTEMS INC. 24
TRANS UNION LLC 14
TRIPWIRE INC. 23
TRUSTED COMPUTER SOLUTIONS INC. 31
TRUSTED STRATEGIES LLC 31
TUMBLEWEED COMMUNICATIONS CORP. 32
U.S. DEPARTMENT OF DEFENSE 7, 40
U.S. DEPARTMENT OF EDUCATION 40
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES 7
U.S. DEPARTMENT OF JUSTICE 31
U.S. DEPARTMENT OF THE TREASURY 40
U.S. DEPARTMENT OF VETERANS AFFAIRS 7, 14, 40
UNIVERSITY CORPORATION FOR ADVANCED INTERNET DEVELOPMENT 30
UNIVERSITY OF CALIFORNIA 30
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAGNE 30
UNIVERSITY OF SOUTHERN CALIFORNIA 30
VALYD INC. 24
VENDOR APPLICATION SECURITY INC. 24
VITAMIN SHOPPE INDUSTRIES INC. 36
WATCHGUARD TECHNOLOGIES INC. 32
WEBMD INC. 36
WEBMETHODS INC. 8
WI-FI ALLIANCE 16
WILLIAM BEAUMONT HOSPITAL 14
WINCHESTER SYSTEMS INC. 13
WIPRO LTD. 16
WM-DATA NORDIC AB 16
WYSE TECHNOLOGY INC. 10
YAHOO INC. 18
YALE UNIVERSITY 36
Z4 TECHNOLOGIES INC. 6
ZAPR LTD. 10
ZAPTHINK LLC 8

Continued from page 1

ODF

top accessibility and be both economical and minimally disruptive to agencies.

Gutierrez added in the e-mail, which was released by the state last week, that the plug-in strategy will let agencies continue to leverage the accessibility features of Office while Microsoft's desktop application rivals and third-party developers "resolve a doable list of accessibility fixes and enhancements."

Eventually, state agencies will be able to choose between sticking with Office or moving to alternative software, Gutierrez wrote. In the meantime, he noted, existing Office installations will be able to work with OpenDocument, which is formally called the Open Document Format for Office Applications and also referred to as ODF.

Gutierrez met with accessibility advocates on Aug. 18 to detail the state's plan. In an official letter that he sent to them last Wednesday, the CIO wrote that the plan calls for the Massachusetts Office on Disability and other early-adopter agencies to begin using Office plug-ins that support ODF by Jan. 1. The state expects to migrate its other executive agencies to ODF by next June in a phased rollout.

However, Gutierrez added in the letter that the target dates "are not set in stone." He wrote that the state's plan depends on several factors, including the adoption of a new version of ODF being developed by the Organization for the Advancement of Structured Information Standards (OASIS) that addresses "minor accessibility issues."

Also, vendors have to deliver ODF translator plug-ins that are suitable for use with Office by November in order to meet the initial Jan. 1 rollout date, Gutierrez wrote.

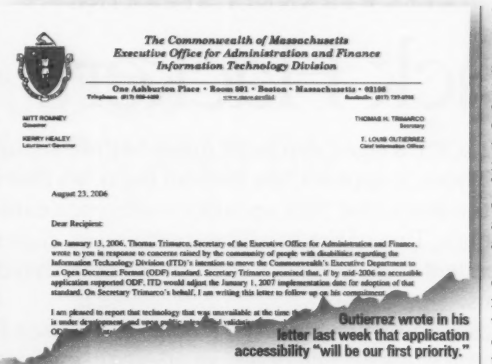
John Winske, chairman of the Boston-based Disability Policy Consortium, said after the Aug. 18 meeting with Gutierrez that the state's amended plan is "fantastic news" for government workers with disabilities in Massachusetts.

"I couldn't imagine a better victory," Winske said. "Now, instead of what could have been a very disastrous policy and very bad news for employees with disabilities, we're going to have a strong advocate [for accessibility] on our side."

Open XML Alternative?

ODF became an OASIS standard last year and was ratified by the International Standards Organization in May. The upstart file format is supported by desktop applications such as StarOffice from Sun Microsystems Inc. and OpenOffice, an open-source offshoot of the Sun suite.

Proponents of ODF are touting it as an alternative to Open XML, and they hope that encouraging the adoption of a non-Microsoft format will help loosen Office's hold on its more than 400 million end users worldwide. The national governments of Belgium and Denmark have also moved to adopt ODF for internal use.



The Commonwealth of Massachusetts
Executive Office for Administration and Finance
Information Technology Division

One Ashburton Place • Room 801 • Boston • Massachusetts • 02108

MITT ROMNEY, Governor — KERRY HEALEY, Lieutenant Governor

THOMAS H. TRIMARCO, Secretary — T. LOUIS GUTIERREZ, Chief Information Officer

August 23, 2006

Dear Recipient:

On January 13, 2006, Thomas Trimarco, Secretary of the Executive Office for Administration and Finance, wrote to you in response to concerns raised by the community of people with disabilities regarding the Information Technology Division (ITD)'s intention to move the Commonwealth's Executive Department to an Open Document Format (ODF) standard. Secretary Trimarco promised that, if by mid-2006 no accessible application supported ODF, ITD would adjust the January 1, 2007 implementation date for adoption of that standard. On Secretary Trimarco's behalf, I am writing this letter to follow up on his commitment.

I am pleased to report that technology that was unavailable at the time [illegible] is under development and upon [illegible] validation [illegible]

Gutierrez wrote in his letter last week that application accessibility "will be our first priority."

Massachusetts first said it was moving toward ODF last August, when it had a different CIO. But Gutierrez found himself in a bind when he took over the state's IT division in February, because StarOffice, OpenOffice and other ODF-compliant applications aren't fully supported by the major vendors of screen readers, magnifiers and other assistive technologies.

The plug-in approach has been in the works for months. In May, Gutierrez issued a request for information about ODF translator plug-ins that could work with existing versions of Office as well as Office 2007. Microsoft was among the vendors that responded. And early last month, the company announced that it was funding an open-source project to develop free ODF plug-ins for Office (see story below).

One thing that Massachusetts and Microsoft have yet to reach a meeting of the minds on is Open XML. However, Gutierrez wrote in his letter that his department plans to review the state's Enterprise Technical Reference Model every six months to take into account technology changes and evolving standards.

Alan Yates, general manager of information worker business strategy at Microsoft, said via a spokeswoman that the IT division in Massachusetts "appears to be working in a very practical and constructive way . . . in moving carefully to standards-based XML document formats."

But Douglas Johnson, Sun's corporate standards program manager, maintained that open-source accessibility tools already work well with OpenOffice and StarOffice. "I think that free, open-source accessibility technologies that go with a free OpenOffice is a better story [than using Office is]," Johnson said. ▸

Group Backed by Microsoft May Have to Hurry on Plug-ins

THE NOVEMBER DEADLINE set by Massachusetts CIO Louis Gutierrez for the state to receive plug-ins enabling compatibility between Office and the OpenDocument file format could prove to be too tight for a series of open-source plug-ins that Microsoft is funding.

Microsoft said early last month that it expected a third-party Word plug-in being developed with its financial backing to be ready by December. Similar plug-ins that will let users store Excel spreadsheets and PowerPoint presentations in the OpenDocument format are scheduled to follow next year, according to Microsoft.

In a blog posting last Wednesday, Brian Jones, a Microsoft developer who works on Office file formats, wrote that the second beta release of the Word plug-in was made available on Aug. 18. He indicated that the plug-in has garnered a total of about 25,000 downloads since its initial beta release in July.

The blog entry didn't say whether the Microsoft-backed plug-in is being tested by the Massachusetts government's IT division.

Through a spokeswoman, the software vendor said it didn't know whether the state had downloaded and started testing the Word plug-in.

Gutierrez and a spokesman for Gov. Mitt Romney's office both declined to comment about the Microsoft-backed plug-in.

Several plug-in developers confirmed that the state's IT division is actively putting their technologies through their paces.

"Accessibility is right at the top of the state's list, along with high document fidelity," said Gary Edwards, a co-founder of The OpenDocument Foundation Inc. "We do think we can handle everything that they're throwing at us."

Edwards helped found the nonprofit organization, which was set up to promote the use of ODF. But the foundation also has developed an ODF plug-in for Office – a move that Edwards acknowledged could extend the usefulness of Microsoft's market-dominating application suite.

Sun Microsystems has also created plug-ins that now are being tested by the IT division in Massachusetts, according to Douglas Johnson, the company's corporate standards program manager.

In the letter that Gutierrez sent to accessibility advocates last week to formally announce the plug-in plan, he said that the state's approach "will fulfill our legal and moral obligations to the community of people with disabilities." In addition, it "acknowledges the practical requirements of [ODF] implementation" while enabling agencies to continue to pursue the benefits of adopting open standards, he wrote.

But the fact that the plug-ins are still in the development stage is one of the reasons why the state plans to deploy the technology in phases, according to the e-mail message that Gutierrez sent to members of the Massachusetts IT Advisory Board two weeks ago. The phased rollout will "allow additional time for a measured and thoughtful implementation," he wrote.

– ERIC LAI

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #40063800. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published weekly, except a single combined issue for the last two weeks in December by Computerworld, Inc., 1 Speen Street, Box 9171, Framingham, Mass. 01701-9171. Copyright 2006 by Computerworld Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Renee Smith, Computerworld Reprints, c/o Reprint Management Services, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (717) 399-1900, Ext. 150, Fax: (717) 399-8900. Web site: www.reprintbuyer.com. E-mail: computerworld@reprintbuyer.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy: U.S. – $99.99 per year; Canada – $130 per year; Central & So. America, $250 per year; Europe – $295 per year; all other countries – $295 per year. Subscriptions call toll-free (888) 559-7327. **POSTMASTER:** Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, Ill. 60065-3500.

BPA Worldwide ABM Red Tag

FRANK HAYES ■ FRANKLY SPEAKING

Quack Hackers

HOAX HACKS. Rigged demos of make-believe security holes. Those, it appears, are the *real* big news that came out of the Black Hat USA security conference earlier this month. Two of the headline-grabbingest claims by independent security researchers at the show have since turned out to be bogus.

One, a reportedly easy-to-exploit security problem in a Cisco firewall appliance, isn't reproducible. The other, an allegedly even-easier-to-exploit hole in Apple's Wi-Fi drivers, didn't actually involve attacking Apple's products after all.

So much for one of IT's last great myths: the honest hacker.

Hey, I still believe honest hackers exist. More than a dozen security problems were showcased by Black Hatters this year. Some have already been fixed; some have hardware and software vendors hard at work correcting very real issues.

Lots of the people who turned up those problems gained their security expertise the old-fashioned way: by hacking into systems they weren't supposed to be anywhere near. They've since cleaned up, dressed up and hung out their shingles as security researchers. But we know at heart they're still hackers.

And that's been highly valuable to us, especially since IT product vendors aren't always, um, completely candid about security issues. These hackers compete to build credibility by finding security holes and telling us about them. It's in their interest to be honest players in this free market for information about IT vulnerabilities. That's how they build business.

Vendors don't much like it — security holes make them look bad. And it's a pain for us to learn that our production systems are at risk. But the real bad guys already know about these flaws. We're just finding out what we need to know to protect ourselves — at least when the hackers keep it honest.

Now we're learning that some of them have all the reliability of the phoniest vendor dog-and-pony show.

Consider Hendrik Scholz, the guy who said at Black Hat that he found a "really easy to do" technique for bypassing Cisco's firewall appliances. His claim consisted of a single slide he tacked onto the end of his talk (it wasn't in the version of Scholz's presentation that Black Hat attendees received).

But in interviews, Scholz admitted that an attack would require insider knowledge and pre-existing control of a device inside the firewall. No wonder Cisco can't reproduce a successful real-world attack.

Or consider SecureWorks researcher David Maynor and hacker Jon "Johnny Cache" Ellch, who worked the press like champs with a Black Hat demonstration of hacking into a wireless-equipped Apple MacBook in 60 seconds. It generated plenty of "Mac hack" publicity.

But SecureWorks has now distanced itself from its employee's published claims that he can hack Mac Wi-Fi. Turns out the Black Hat demo was on third-party Wi-Fi products that Maynor won't identify. He's never shown an attack on Apple's built-in wireless hardware and software — not even privately to Apple. And Maynor has acknowledged that he demoed on the Mac because he thought Mac users were smug about security — and because of the headlines a Mac attack would generate.

True enough: A drive-by cheap shot at Cisco or Apple is sure to score headlines. Never mind the collateral damage to the credibility of other security researchers or to the trust of their potential customers in corporate IT.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

IT people don't need more dog-and-pony shows. We've been cleaning up the mess from those for years.

We need security research we can trust. And the stuff Black Hatters are selling just got harder to buy.

But even if we now have to view these researchers with the same jaundiced eye we once reserved for our most shameless vendors, they're still worth our attention. We may believe them less, but we haven't got much choice.

After all, when it comes to uncovering security holes, if you can't trust hackers, who *can* you trust? ▸

SHARK TANK

Reality – What a Concept!

Developer pilot fish turns the specs for a new application into a schedule, and within a few days, he hears back from the manager. "We don't have five months to do the work; we've only got three," he tells fish. All the features you specified will take five months to develop, fish points out. "But five months is too long. We've already told the customer we'll deliver in three months." Says fish, "I replied, 'You can put three months down on your plan if you want, but the work is still going to take five.' He looked at me, huffed, and then started removing features so we could do the work in three months."

Speak Up!

Junior-level IT pilot fish has been repeatedly told *not* to comment on senior staffers' actions or performance. So he just watches as another staffer and a vendor guy set up a new UPS for a mission-critical server. Staffer says, "OK, it's time to test it" – and unplugs the server from the UPS. "I bit my tongue but said to myself, 'I don't think that's the appropriate way to test a UPS.' " says fish. "At the outbrief, I was asked why I didn't speak up. I guess everything really does roll downhill."

Impossible!

Office manager for this small rail-car company calls pilot fish to complain that she hears voices over the newly installed wireless network. Fish knows that's impossible, so he just power-cycles the access point and tells her to call if it happens again. "Two hours later, she called," says fish. "Sure enough, in her office I heard a voice say, 'Switching is complete, we can roll.' I looked out and saw a train stopped next to the building. The rail crew's radio was being picked up by the cheap speakers on her PC."

Too Possible!

User's keyboard generates random characters, and when support pilot fish examines it, he gets a lapful of water. "The user had as surprised a look as I had," says fish. "I was about to ask her what she spilled but then noticed a wet spot on the ceiling. Apparently, rain from the weekend had leaked onto the keyboard. I replaced the keyboard, moved the user to a drier area and called maintenance to repair the roof."

Never Mind Why – It Works!

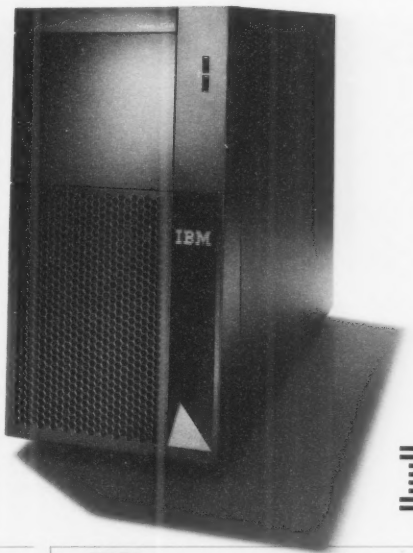
Pilot fish overhears two programmers staring at a screen. Fred: "Yeah, I don't know what causes the bug, but if I run the debugger enough times, it goes away." Barney: "Well then, we just need to make sure to run the debugger a lot." Fred: "I wonder what causes it." Barney: "At least we have a solution now."

SHARKY WONDERS what true tale of IT life you have to tell. Send it to **sharky@computerworld.com**, and you'll score a sharp Shark shirt if I use it. And check out Sharky's blog, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

WE COULD GO ON AND ON ABOUT HOW IT GOES ON AND ON.

The IBM System x3500 Express, with Dual-Core Intel® Xeon® Processors, is designed to help increase reliability. And if there's the sign of a potential hardware problem, IBM Light-Path Diagnostics can pinpoint it. Quickly. So you can take care of it. Quickly.

With IBM, innovation comes standard. It's that simple.



IBM **System x3500 Express**

Great for Web-serving, messaging and collaboration, or business apps.

Starting from **$2,189*** or **$60**/month[1]

- Up to two Dual-Core Intel® Xeon® Processors 5150-3GHz 2 x 2MB L2 Cache
- Light-Path Diagnostics pinpoints hardware problem areas
- Up to 48GB 667MHz High Performance memory
- Up to 2.4TB Hot Swap SAS or 4.0TB Hot Swap SATA
- RAID 0,1,5 standard and redundant power capability
- Limited warranty: 3 years on-site[2]

IBM **System x3650 Express**

Starting from **$2,309*** or **$63**/month[1]

- Dual-Core Intel® Xeon® Processor up to 3.20GHz
- Two-way 2U rack server
- Up to 48GB High Performance memory using 12 DIMM slots
- Predictive Failure Analysis® and Light-Path Diagnostics help provide easy identification of hardware problems
- Limited warranty: up to 3 years on-site[2]

IBM eServer™ **xSeries® 206m Storage Server Express**

Starting from **$3,049*** or **$83**/month[1]

- Dual-Core Intel® Pentium® D Processor 2.80GHz
- 1TB Hot Swap SATA storage (4 x 250GB HDDs)
- Windows® Storage Server 2003 R2 Standard Edition 64-bit
- 5 Client Licenses Tivoli® CDP (1 year)
- ServeRAID-8i card with redundant power supply
- Limited warranty: 3 years on-site[2]

COMPLIMENTARY IBM SYSTEMS ADVISOR TOOL

Tell the IBM Systems Advisor what your I.T. needs are. And it will automatically suggest a server or storage product to help meet your requirements.

ibm.com/systems/innovate40 **1 866-872-3902** mention 104CE33A

*All prices are IBM's estimated retail selling prices as of June 27, 2006. Prices may vary according to configuration. Resellers set their own prices, so reseller prices to end users may vary. Products are subject to availability. This document was developed for offerings in the United States. IBM may not offer the products, features, or services discussed in this document in other countries. Prices subject to change without notice. Starting price may not include a hard drive, operating system or other features. Contact your IBM representative or IBM Business Partner for the most current pricing in your geography. 1. IBM Global Financing offerings are provided through IBM Credit LLC in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Monthly payments provided are for planning purposes only and may vary based on your credit and other factors. Lease offer provided is based on a FMV lease of 36 monthly payments. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice. 2. IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representation or warranty regarding third-party products or services including those designated as ServerProven or ClusterProven. Telephone support may be subject to additional charges. For on-site labor, IBM will attempt to diagnose and resolve the problem remotely before sending a technician. On-site warranty is available only for selected components. IBM, the IBM logo, Predictive Failure Analysis, eServer, xSeries and Tivoli are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Intel, Intel Inside, the Intel Inside logo, Intel Xeon, Xeon Inside and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Windows is a trademark of Microsoft Corporation in the United States, other countries, or both. Other company, product and service names may be trademarks or service marks of others. © 2006 IBM Corporation. All rights reserved.

Oracle Fusion Middleware

Leading Companies Rely on Oracle for Service-Oriented Architecture

Oracle Fusion Middleware

Hot-Pluggable. Comprehensive.

ESB — Web Services Security & Management — BPM — Service Registry — Portal
Business Rules — Business Activity Monitoring

ORACLE®

oracle.com/soa
or call 1.800.633.0641

Copyright © 2006, Oracle. All rights reserved. Oracle, JD Edwards, PeopleSoft and Siebel are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.